Maintenance and Service Guide

HP Pavilion dv9000 and dv9200 Notebook PC

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This guide is a troubleshooting reference used for maintaining and servicing the computer. It provides comprehensive information on identifying computer features, components, and spare parts; troubleshooting computer problems; and performing computer disassembly procedures.

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Safety warning notice

WARNING: To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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1

Product Description

The HP Pavilion dv9000 Notebook PC offers advanced modularity, Intel® Core™ Duo processors, and extensive multimedia support.



HP Pavilion dv9000 Notebook PC

1.1 Features

- The following processors are available, varying by computer model:
  - ❏ Intel Core Duo T7200 (2.00-GHz)
  - ❏ Intel Core Duo T5600 (1.83-GHz)
  - ❏ Intel Core Duo T5500 (1.66-GHz)
  - ❏ Intel Core Duo T5300 (1.73-GHz)
  - ❏ Intel Core Duo T5200 (1.66-GHz)
  - ❏ Intel Core Duo T2250 (1.66-GHz)
  - ❏ Intel Core Duo T2350 (1.86-GHz)
  - ❏ Intel Core Duo T2300E (1.66-GHz)
  - ❏ Intel Pentium Dual-Core T2080 (1.73-GHz)
  - ❏ AMD Turion TL-64 2.2-GHz
  - ❏ AMD Turion TL-60 2.0-GHz
  - ❏ AMD Turion TL-58 1.9-GHz
  - ❏ AMD Turion TL-56 1.8-GHz
  - ❏ AMD Athlon 64 TK-53 (1.7-GHz)
- The following displays are available, varying by computer model:
  - ❏ 17.0-inch WSXGA+ BrightView (1680 × 1050) TFT display with over 16.7 million colors
  - ❏ 17.0-inch WXGA+ BrightView (1440 × 900) TFT display with over 16.7 million colors
- 200-, 160-, 120-, 100-, or 80-GB high-capacity hard drive, varying by computer model
- 512-MB DDR synchronous DRAM (SDRAM) at 667 MHz, expandable to 2.0 GB
- Microsoft® Windows Vista™ Business, Windows Vista Home Basic, and Windows® XP Professional
- Full-size Windows keyboard with numeric keypad

- TouchPad pointing device with on/off button and dedicated two-way scroll zone
- Integrated 10/100/1000 Gigabit Ethernet local area network (LAN) network interface card (NIC) with RJ-45 jack, varying by computer model
- Integrated high-speed 56K modem with RJ-11 jack
- Integrated wireless support for Mini Card IEEE 802.11a/b/g and 802.11b/g WLAN devices
- Support for ExpressCard
- External 90-watt AC adapter with 3-wire power cord
- 8-cell Li-Ion battery
- Stereo speakers with volume control buttons
- Integrated 1.3-megapixel camera
- Integrated microphones (select models only)
- Support for the following optical drives:
  - DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe
  - DVD±RW/R and CD-RW Double-Layer Combo Drive
- Connectors:
  - Audio-in (microphone)
  - Audio-out (headphone, 2)
  - Consumer infrared lens
  - Expansion port 3
  - ExpressCard
  - External monitor
  - IEEE 1394a digital
  - Digital Media Slot
  - Power
  - RJ-11 (modem)
  - RJ-45 (network)

- ❏ S-Video-out
- ❏ Universal Serial Bus (USB) v. 2.0 (4 ports)

1.2 Resetting the Computer

If the computer you are servicing has an unknown password, follow these steps to clear the password. These steps also clear CMOS:

1. Prepare the computer for disassembly (refer to Section 5.3, "Preparing the Computer For Disassembly," for more information).
2. Remove the real-time clock (RTC) battery (refer to Section 5.7, "RTC Battery," for more information).
3. Wait approximately 5 minutes.
4. Replace the RTC battery and reassemble the computer.
5. Connect AC power to the computer. Do not reinsert any batteries at this time.
6. Turn on the computer.

All passwords and all CMOS settings have been cleared.

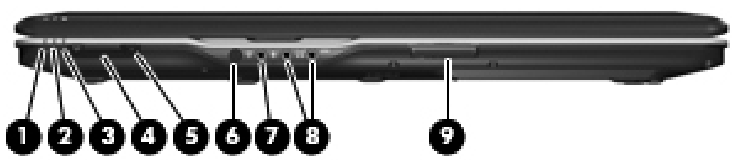
1.3 Power Management

The computer comes with power management features that extend battery operating time and conserve power. The computer supports the following power management features:

- Standby
- Hibernation
- Setting customization by the user
- Hotkeys for setting the level of performance
- Battery calibration
- Lid switch standby/resume
- Power button
- Advanced Configuration and Power Management (ACPM) compliance

1.4 External Components

The external components on the front of the computer are shown below and described in Table 1-1.



Front Components

Table 1-1

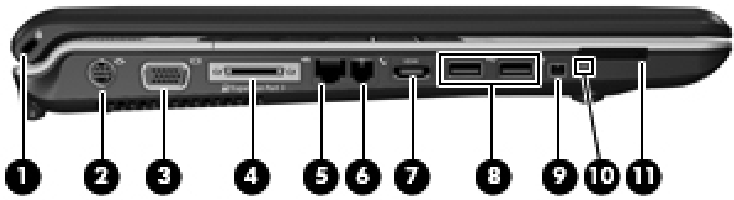
Front Components

Item	Component	Function
1	Power light	On: The computer is on. Blinking: The computer is in standby. Off: The computer is off or in hibernation.
2	Battery light	On: A battery is charging. Blinking: A battery that is the only available power source has reached a low-battery condition. When the battery reaches a *critical* low-battery condition, the battery light begins blinking rapidly. Off: If the computer is plugged into an external power source, the light is turned off when all batteries in the computer are fully charged. If the computer is not plugged into an external power source, the light stays off until the battery reaches a low-battery condition.

Table 1-1
Front Components *(Continued)*

Item	Component	Function
3	Drive light	Blinking: The hard drive or optical drive is being accessed.
4	Wireless switch	Turns the wireless feature on or off, but does not create a wireless connection. ✎ A wireless network must be set up in order to establish a wireless connection.
5	Wireless light	Blue: An integrated wireless device, such as a wireless local area network (LAN) device and/or a Bluetooth® device, is turned on. Amber: All wireless devices are turned off.
6	Consumer infrared lens (select models only)	Receives a signal from the HP Remote Control.
7	Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
8	Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.
	Audio-out (headphone) S/PDIF jack	Provides enhanced audio performance, including surround sound and other high-end audio output.
9	Display lid latch	Opens the computer.

The external components on the left side of the computer are shown below and described in Table 1-2.



Left-Side Components

Table 1-2

Left-Side Components

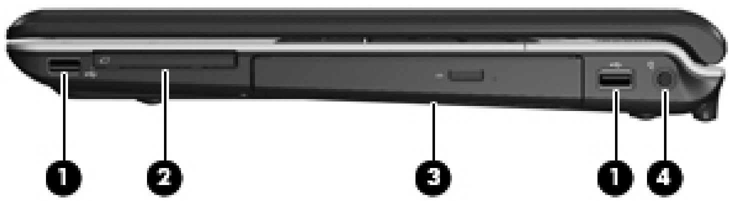
Item	Component	Function
1	Security cable slot	Attaches an optional security cable to the computer. ✎ The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
2	S-Video-out jack	Connects an optional S-Video device such as a television, VCR, camcorder, overhead projector, or video capture card.
3	External monitor port	Connects an external VGA monitor or projector.

Table 1-2

Left-Side Components *(Continued)*

Item	Component	Function
4	Expansion port 3	Connects the computer to an optional expansion product. ✎ The computer has only one expansion port. The term *expansion port 3* describes the type of expansion port.
5	RJ-45 (network) jack	Connects a network cable. ✎ The RJ-45 (network) jack provides Gigabit Ethernet functionality.
6	RJ-11 (modem) jack	Connects a modem cable.
7	HDMI port (select models only)	Connects an optional audio or video device such as a high-definition television, set-top box, DVD player, or any compatible digital or audio device.
8	USB ports (2)	Connect optional USB devices.
9	1394 port	Connects an optional IEEE 1394 or 1394a device, such as a camcorder.
10	Digital Media Slot light	On: A digital card is being accessed.
11	Digital Media Slot	Supports the following optional digital card formats: Secure Digital (SD) Memory Card, MultiMediaCard (MMC), Secure Digital Input/Output (SD I/O), Memory Stick (MS), Memory Stick Pro (MSP), xDPicture Card (XD), xD-Picture Card (XD) Type M.

The external components on the right side of the computer are shown below and described in Table 1-3.



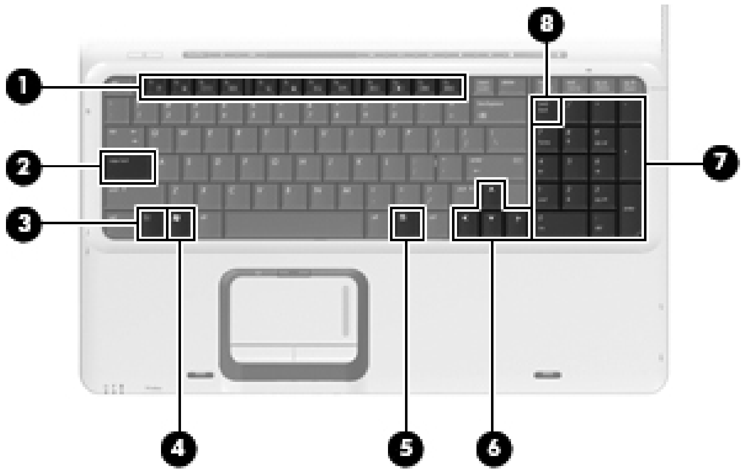
Right-Side Components

Table 1-3

Right-Side Components

Item	Component	Function
1	USB ports (2)	Connect optional USB devices.
2	ExpressCard slot	Supports optional ExpressCard/54 cards.
3	Optical drive	Reads an optical disc.
4	Power connector	Connects an AC adapter.

The computer keyboard components are shown below and described in Table 1-4.



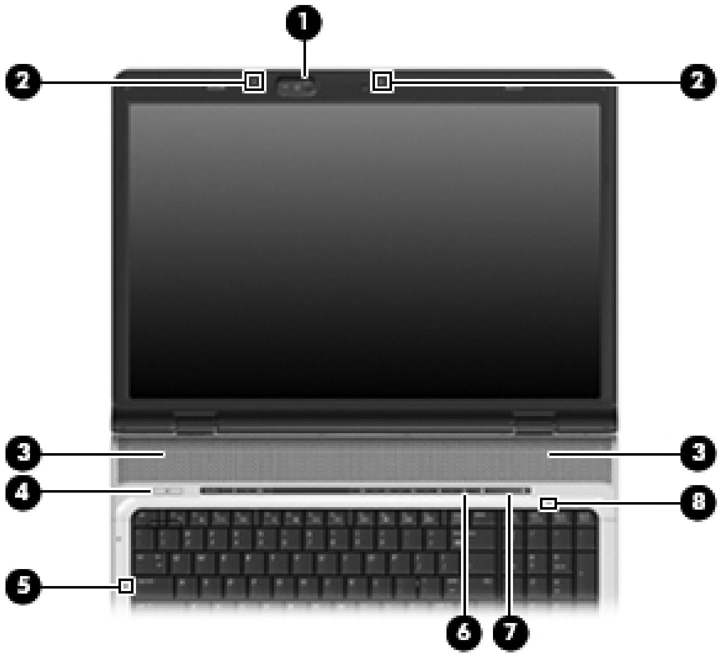
Keyboard Components

Table 1-4

Keyboard Components

Item	Component	Function
1	Function keys	Execute frequently used system functions when pressed in combination with the **fn** key.
2	**caps lock** key	Enables caps lock and turns on the caps lock light.
3	**fn** key	Executes frequently used system functions when pressed in combination with a function key or the **esc** key.
4	Windows logo key	Displays the Microsoft Windows Start menu.
5	Windows applications key	Displays a shortcut menu for items beneath the pointer.
6	Arrow keys	Move the cursor around the screen.
7	Numeric keypad keys	Can be used like the keys on an external numeric keypad.
8	**num lock** key	Enables numeric lock, turns on the embedded numeric keypad, and turns on the num lock light.

The computer top components are shown below and described in Table 1-5.



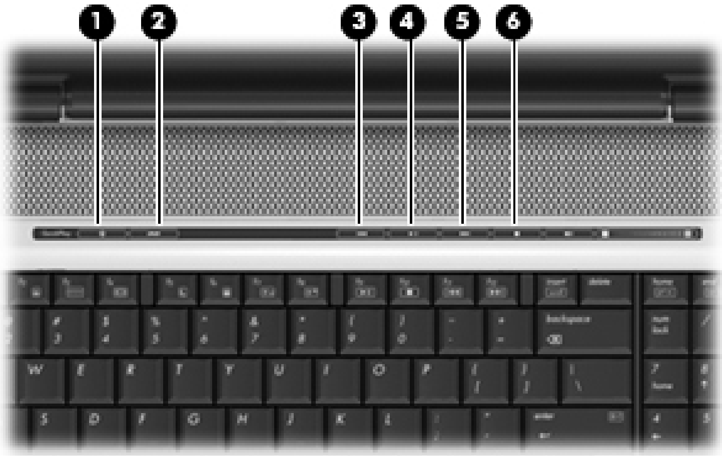
Top Components, Part 1

Table 1-5

Top Components, Part 1

Item	Component	Function
1	Integrated camera (select models only)	Records video and captures still photos.
2	Internal microphones (2, select models only)	Record sound. ✎ A microphone icon next to each microphone opening indicates that the computer has internal microphones.
3	Speakers (2)	Produce sound.
4	Power button	When the computer is ■ Off, press to turn on the computer. ■ On, press to enter hibernation. ■ In standby, briefly press to exit standby. ■ In hibernation, briefly press to exit hibernation. If the computer has stopped responding and Microsoft® Windows® shutdown procedures cannot be used, press and hold the power button for at least 5 seconds to turn off the computer.
5	Caps lock light	On: Caps lock is on.
6	Volume mute button	Mutes and restores speaker sound.
7	Volume scroll zone	Adjusts speaker volume. Slide your finger to the left to decrease volume and to the right to increase volume. You can also tap the minus sign on the scroll zone to decrease volume, or tap the plus sign on the scroll zone to increase volume.
8	Num lock light	On: Num lock is on.

The computer top components are shown below and described in Table 1-6.



Top Components, Part 2

Table 1-6

Top Components, Part 2

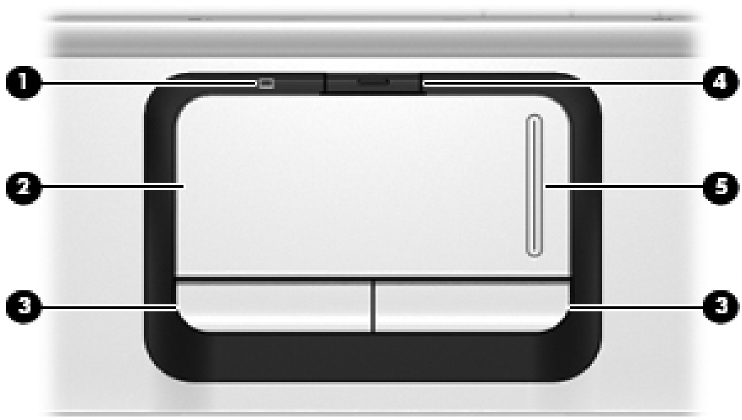
Item	Component	Function
1	Media button	If QuickPlay is not installed and the computer is ■ On, opens the music program or Media menu, which allows you to select a multimedia program. ■ Off, does not function. ■ In standby, resumes from standby into Windows. If QuickPlay is installed and the computer is ■ On, opens the music program or Media menu, which allows you to select a multimedia program. ■ Off, opens the music program or the Media menu, which allows you to select a multimedia program. ■ In standby, resumes from standby into Windows. ✎ The media button does not affect the procedure for restoring from hibernation.
2	DVD button	When the computer is ✎ On, opens the default DVD program to start a DVD in the optical drive. ✎ Off, opens QuickPlay to start a DVD in the optical drive. If the QuickPlay software is not installed, the DVD button starts in Windows. ✎ In hibernation, opens QuickPlay to start a DVD in the optical drive. If QuickPlay is not installed, the computer resumes from hibernation.

Table 1-6

Top Components, Part 2 *(Continued)*

Item	Component	Function
3	Previous/rewind button	When a disc is playing in the optical drive: ■ Plays the previous track or chapter, when pressed once. ■ Rewinds when pressed with the **fn** key.
4	Play/pause button	When a disc is in the optical drive and is ■ Not playing, plays the disc. ■ Playing, pauses the disc.
5	Next/fast forward button	When a disc is playing in the optical drive: ■ Play the next track or chapter, when pressed once. ■ Fast forwards when pressed with the **fn** key.
6	Stop button	When a disc is playing in the optical drive, stops the current disc activity.

The computer TouchPad components are shown below and described in Table 1-7.



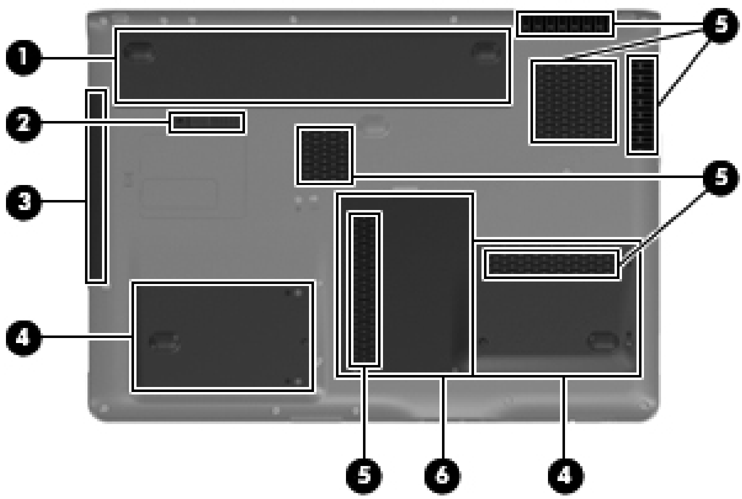
TouchPad Components

Table 1-7

Touchpad Components

Item	Component	Function
1	TouchPad light	Blue: TouchPad is enabled. Amber: TouchPad is disabled.
2	TouchPad	Moves the pointer and selects or activates items on the screen.
3	Left and right TouchPad buttons	Function like the left and right buttons on an external mouse.
4	TouchPad on/off button	Enables/disables the TouchPad.
5	TouchPad vertical scroll zone	Allows you to scroll up or down.

The external components on the bottom of the computer are shown below and described in Table 1-8.



Bottom Components

Table 1-8

Bottom Components

Item	Component	Function
1	Battery bay	Holds the battery.
2	Battery release latch	Releases the battery from the battery bay.

Table 1-8

Bottom Components *(Continued)*

Item	Component	Function
3	Optical drive	Reads an optical disc.
4	Secondary hard drive bay	Holds an optional secondary hard drive.
	Primary hard drive bay	Hold the primary hard drive.
5	Vents (6)	Enable airflow to cool internal components. ✎ The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
6	Memory module compartment	Contains the memory module slots, the Mini Card slot, and the RTC battery.

1.5 Design overview

This section presents a design overview of key parts and features of the computer. Refer to Chapter 3, "Illustrated Parts Catalog," to identify replacement parts, and Chapter 5, "Removal and Replacement Procedures," for disassembly steps.

The system board provides the following device connections:

- AMD Mobile Turion and Mobile AMD Athlon processors
- Audio
- Display
- ExpressCard
- Fan
- Hard drive
- Intel Core Duo processors
- Keyboard and TouchPad
- Memory module
- Mini Card module

CAUTION: To properly ventilate the computer, allow at least a 7.6-cm (3-inch) clearance on the left and right sides of the computer.

The computer uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software. Exhaust air is displaced through the ventilation grill located on the left side of the computer.

2

Troubleshooting

WARNING: Only authorized technicians trained by HP should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly-/module-level repair. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or modifications to any printed wiring board. Improper repairs can create a safety hazard. Any indication of component replacement or printed wiring board modification may void any warranty or exchange allowances.

2.1 Setup Utility in Windows XP

The Setup Utility is a ROM-based information and customization utility that can be used even when your Windows operating system is not working or will not load.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

1. Turn on or restart the computer in Windows.
2. Before Windows opens and while the “Press <F10> to enter setup” prompt is displayed in the lower-left corner of the screen, press **f10**.

Using the Setup Utility

Changing the Language of the Setup Utility

The following procedure explains how to change the language of the Setup Utility. If the computer is not in the Setup Utility, begin at step 1. If the computer is in the Setup Utility, begin at step 2.

1. To open the Setup Utility, turn on or restart the computer in Windows, and then press **f10** while the prompt, “Press <F10> to enter setup,” is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Press **f5** or **f6** (or use the arrow keys) to select a language, and then press **enter** to select a language.
4. When a confirmation prompt with your preference selected is displayed, press **enter** to save your preference.
5. To set your preferences and exit the Setup Utility, press **f10** and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts in Windows.

Navigating and Selecting in the Setup Utility

Because the Setup Utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a drop-down list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.
- To select an item, press **enter**.
- To close a text box or return to the menu display, press **f1**.
- To display additional navigation and selection information while the Setup Utility is open, press **f1**.

Displaying System Information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not open, begin at step 1. If the Setup Utility is open, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer in Windows, and then press **f10** while the prompt, “Press <F10> to enter setup,” is displayed in the lower-left corner of the screen.
2. Access the system information by using the **Main** menu.
3. To close the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**. (The computer restarts in Windows.)

Restoring Default Settings in the Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If the computer is not in the Setup Utility, begin at step 1. If the computer is in the Setup Utility, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer in Windows, and then press **f10** while the prompt, “Press <F10> to enter setup,” is displayed in the lower-left corner of the screen.
2. Select **Exit > Load Setup Defaults**, and then press **f10**.
3. When the Setup Confirmation is displayed, press **enter** to save your preferences.
4. To set your preferences and exit the Setup Utility, press **f10**, and then follow the instructions on the screen.

The Setup Utility default settings are set when you exit the Setup Utility and go into effect when the computer restarts.

✎ Your password, security, and language settings are not changed when you restore the factory default settings.

Using Advanced Setup Utility Features

This guide describes the Setup Utility features recommended for all users. For more information about the Setup Utility features recommended for advanced users only, refer to the Help and Support Center, which is accessible only when the computer is in Windows.

The Setup Utility features available for advanced users include a hard drive self-test, a Network Service Boot, and settings for boot order preferences.

The "<F12> to boot from LAN" message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows or restored from hibernation is the prompt for a Network Service Boot.

The "Press <ESC> to change boot order" message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows or restored from hibernation is the prompt to change the boot order.

Closing the Setup Utility

You can close the Setup Utility with or without saving changes.

- To close the Setup Utility and save your changes from the current session, use either of the following procedures:
  - ❏ Press **f10**, and then follow the instructions on the screen.

    – or –

  - ❏ If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

    When you use the **f10** procedure, you are offered an option to return to the Setup Utility. When you use the Exit Saving Changes procedure, the Setup Utility closes when you press **enter**.

- To close the Setup Utility without saving your changes from the current session:

  If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

After the Setup Utility closes, the computer restarts in Windows.

Setup Utility Menus

The menu tables in this section provide an overview of Setup Utility options.

✎ Some of the Setup Utility menu listed in this chapter may not be supported by your computer.

Main Menu

Table 2-1

Main Menu

Select	To Do This
System Information	■ View and change the system time and date. ■ View identification information about the computer. ■ View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).

Security Menu

Table 2-2

Security Menu

Select	To Do This
Administrator password	Enter, change, or delete an administrator password.
Power-on password	Enter, change, or delete a power-on password.

System Configuration Menu

Table 2-3

System Configuration Menu

Select	To Do This
Language Support	Change the Setup Utility language.
Embedded WLAN Device Radio	Enable/disable an embedded wireless LAN device.
Embedded Bluetooth Device (select models only)	Enable/disable an embedded Bluetooth device (select models only).
Enhanced SATA support (select models only)	Enable/disable enhanced SATA mode.

Table 2-3

System Configuration Menu *(Continued)*

Select	To Do This
Boot Options	Set the following boot options: ■ **f10** and **f12** Delay (sec.)—Set the delay for the **f10** and **f12** functions of the Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). ■ CD-ROM boot—Enable/disable boot from CD-ROM. ■ Floppy boot—Enable/disable boot from Floppy. ■ Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter. ■ Boot Order—Set the boot order for: ❒ USB Floppy ❒ ATAPI CD/DVD ROM Drive ❒ Hard drive ❒ USB Diskette on Key ❒ USB Hard drive ❒ Network adapter

Diagnostics Menu

Table 2-4

Diagnostics Menu

Select	To Do This
Hard Disk Self Test	Run a comprehensive self-test on the hard drive.

2.2 Setup Utility in Windows Vista

The Setup Utility is a ROM-based information and customization utility that can be used even when your Windows® operating system is not working or will not load.

> The fingerprint reader (select models only) does not work when accessing the Setup Utility.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start the Setup Utility:

1. Turn on or restart the computer.
2. Before Windows opens and while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen, press **f10**.

Using the Setup Utility

Changing the Language of the Setup Utility

The following procedure explains how to change the language of the Setup Utility. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is already running, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language**, and then press **enter**.
3. Press **f5** or **f6** (or use the arrow keys) to select a language, and then press **enter** to select a language.
4. When a confirmation prompt with your preference selected is displayed, press **enter** to save your preference.

5. To set your preferences and exit the Setup Utility, press **f10** and then follow the instructions on the screen.

Your preferences go into effect when the computer restarts in Windows.

Navigating and Selecting in the Setup Utility

Because the Setup Utility is not Windows-based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a drop-down list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or **f5** or **f6**.
- To select an item, press **enter**.
- To close a text box or return to the menu display, press **esc**.
- To display additional navigation and selection information while the Setup Utility is open, press **f1**.

Displaying System Information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not open, begin at step 1. If the Setup Utility is open, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen.
2. Access the system information by using the **Main** menu.
3. To exit the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**. (The computer restarts in Windows.)

Restoring Default Settings in the Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is already running, begin at step 2.

1. To start the Setup Utility, turn on or restart the computer, and then press **f10** while “Press <F10> to enter setup” is displayed in the lower-left corner of the screen.
2. Select **Exit > Load Setup Defaults**, and then press **enter**.
3. When the Setup Confirmation is displayed, press **enter** to save your preferences.
4. To set your preferences and exit the Setup Utility, press **f10**, and then follow the instructions on the screen.

The Setup Utility default settings are set when you exit the Setup Utility and go into effect when the computer restarts.

✎ Your password, security, and language settings are not changed when you restore the factory default settings.

Using Advanced Setup Utility Features

This guide describes the Setup Utility features recommended for all users. For more information about the Setup Utility features recommended for advanced users only, refer to Help and Support, which is accessible only when the computer is in Windows.

The Setup Utility features available for advanced users include a hard drive self-test, a Network Service Boot, and settings for boot order preferences.

The “<F12> to boot from LAN” message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt for a Network Service Boot.

The “Press <ESC> to change boot order” message that is displayed in the lower-left corner of the screen each time the computer is started or restarted in Windows is the prompt to change the boot order.

Closing the Setup Utility

You can close the Setup Utility with or without saving changes.

- To close the Setup Utility and save your changes from the current session, use either of the following procedures:
  - ❏ Press **f10**, and then follow the instructions on the screen.

    – or –

  - ❏ If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press **enter**.

    When you use the **f10** procedure, you are offered an option to return to the Setup Utility. When you use the Exit Saving Changes procedure, the Setup Utility closes when you press **enter**.

- To close the Setup Utility without saving your changes from the current session:

  If the Setup Utility menus are not visible, press **esc** to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press **enter**.

After the Setup Utility closes, the computer restarts in Windows.

Setup Utility Menus

The menu tables in this section provide an overview of Setup Utility options.

✎ Some of the Setup Utility menu listed in this chapter may not be supported by your computer.

Main Menu

Table 2-1

Main Menu

Select	To Do This
System Information	■ View and change the system time and date. ■ View identification information about the computer. ■ View specification information about the processor, memory size, system BIOS, and keyboard controller version (select models only).

Security Menu

Table 2-2

Security Menu

Select	To Do This
Administrator password	Enter, change, or delete an administrator password.
Power-on password	Enter, change, or delete a power-on password.

System Configuration Menu

Table 2-3

System Configuration Menu

Select	To Do This
Language Support	Change the Setup Utility language.
Enhanced SATA support (select models only)	Enable/disable enhanced SATA mode.

Table 2-3

System Configuration Menu

Select	To Do This
Boot Options	Set the following boot options: ■ **f10** and **f12** Delay (sec.)—Set the delay for the **f10** and **f12** functions of the Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). ■ CD-ROM boot—Enable/disable boot from CD-ROM. ■ Floppy boot—Enable/disable boot from Floppy. ■ Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter. ■ Boot Order—Set the boot order for: ❐ USB Floppy ❐ ATAPI CD/DVD ROM Drive ❐ Hard drive ❐ USB Diskette on Key ❐ USB Hard drive ❐ Network adapter
Button Sound (select models only)	Enable/disable the Quick Launch Button tapping sound.
Video memory up to (select models only)	Select the amount of video memory.

Diagnostics Menu

Table 2-4

Diagnostics Menu

Select	To Do This
Hard Disk Self Test	Run a comprehensive self-test on the hard drive. ✎ On models with two hard drives, this menu option is called the **Primary Hard Disk Self Test.**
Secondary Hard Disk Self Test (select models only)	Run a comprehensive self-test on a secondary hard drive.

2.3 Troubleshooting Flowcharts

Table 2-5

Troubleshooting Flowcharts Overview

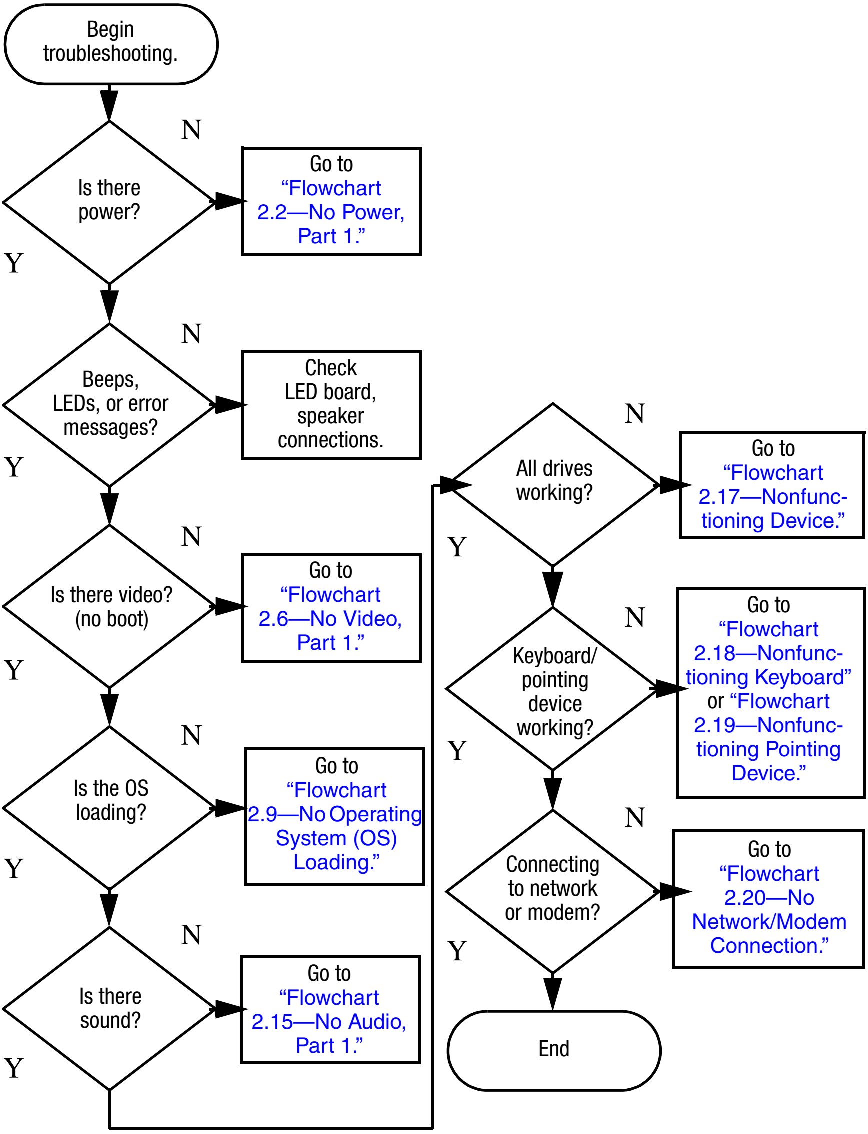
Flowchart	Description
2.1	"Flowchart 2.1—Initial Troubleshooting"
2.2	"Flowchart 2.2—No Power, Part 1"
2.3	"Flowchart 2.3—No Power, Part 2"
2.4	"Flowchart 2.4—No Power, Part 3"
2.5	"Flowchart 2.5—No Power, Part 4"
2.6	"Flowchart 2.6—No Video, Part 1"
2.7	"Flowchart 2.7—No Video, Part 2"
2.8	"Flowchart 2.8—Nonfunctioning Docking Device (if applicable)"
2.9	"Flowchart 2.9—No Operating System (OS) Loading"
2.10	"Flowchart 2.10—No OS Loading, Hard Drive, Part 1"
2.11	"Flowchart 2.11—No OS Loading, Hard Drive, Part 2"
2.12	"Flowchart 2.12—No OS Loading, Hard Drive, Part 3"
2.13	"Flowchart 2.13—No OS Loading, Diskette Drive"

Table 2-5

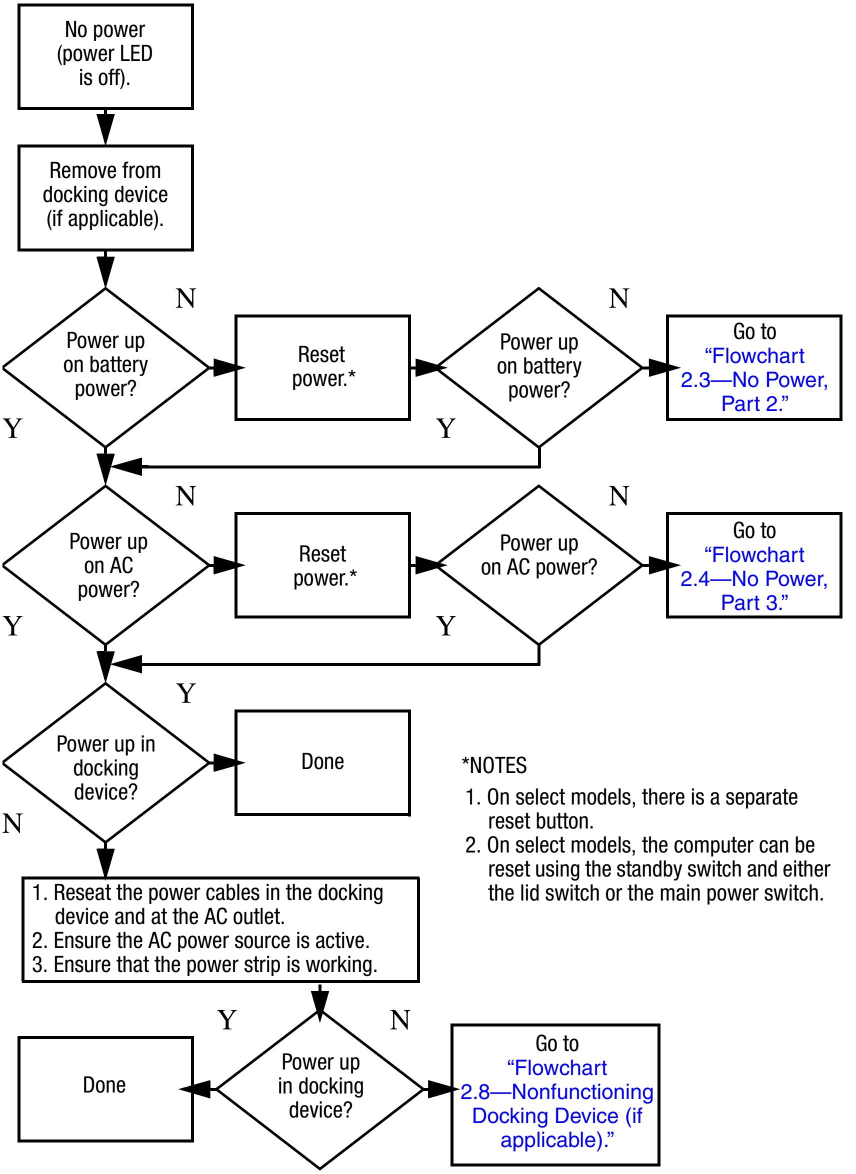
Troubleshooting Flowcharts Overview *(Continued)*

Flowchart	Description
2.14	"Flowchart 2.14—No OS Loading, Optical Drive"
2.15	"Flowchart 2.15—No Audio, Part 1"
2.16	"Flowchart 2.16—No Audio, Part 2"
2.17	"Flowchart 2.17—Nonfunctioning Device"
2.18	"Flowchart 2.18—Nonfunctioning Keyboard"
2.19	"Flowchart 2.19—Nonfunctioning Pointing Device"
2.20	"Flowchart 2.20—No Network/Modem Connection"

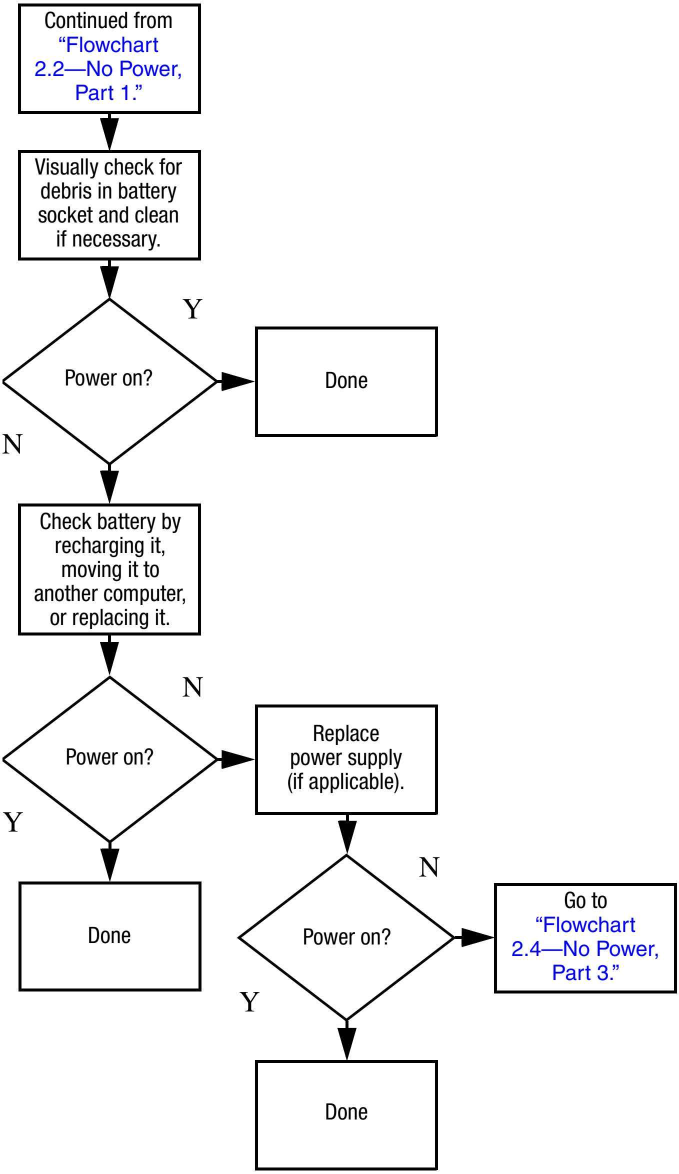
Flowchart 2.1—Initial Troubleshooting



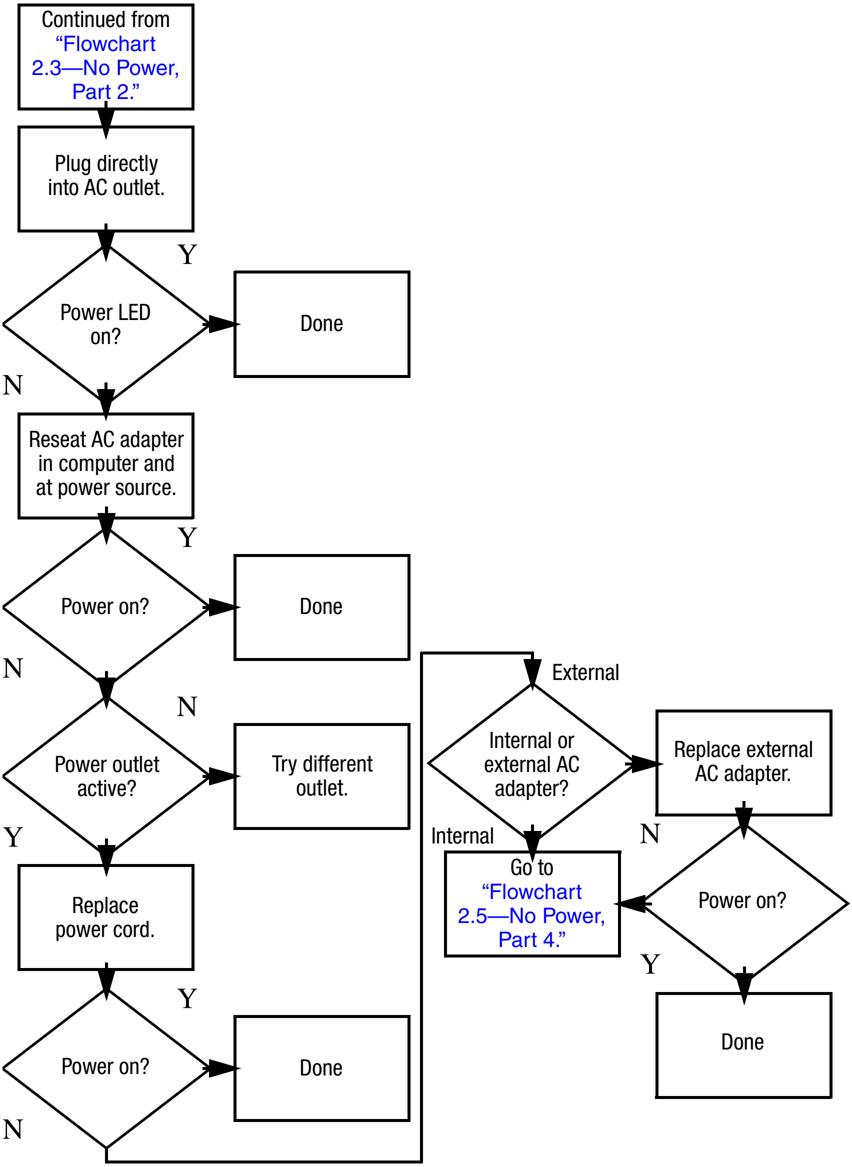
Flowchart 2.2—No Power, Part 1



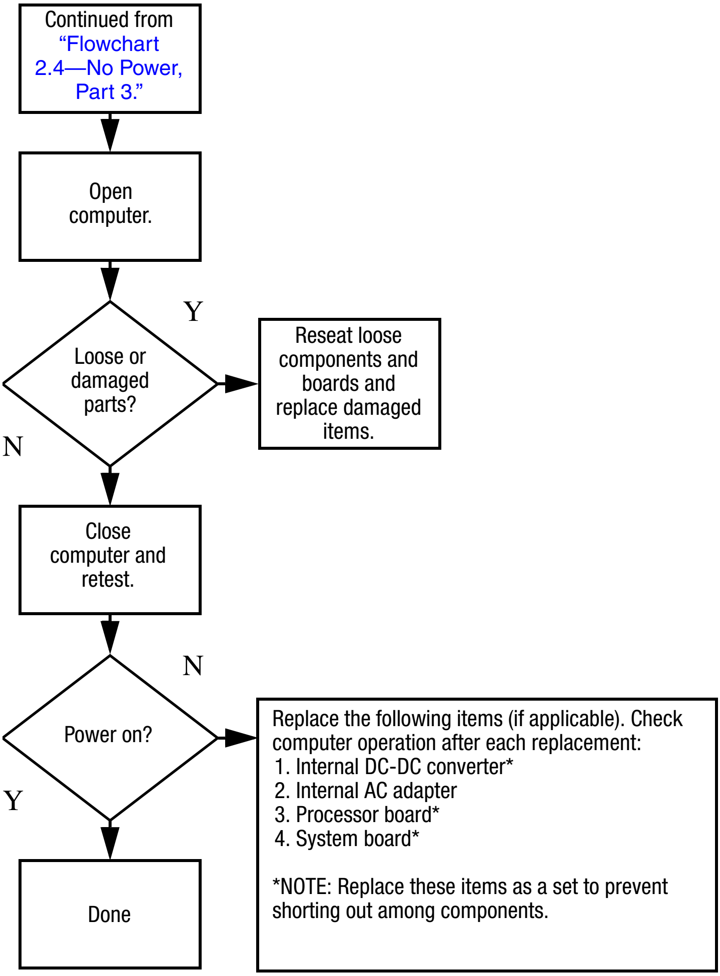
Flowchart 2.3—No Power, Part 2



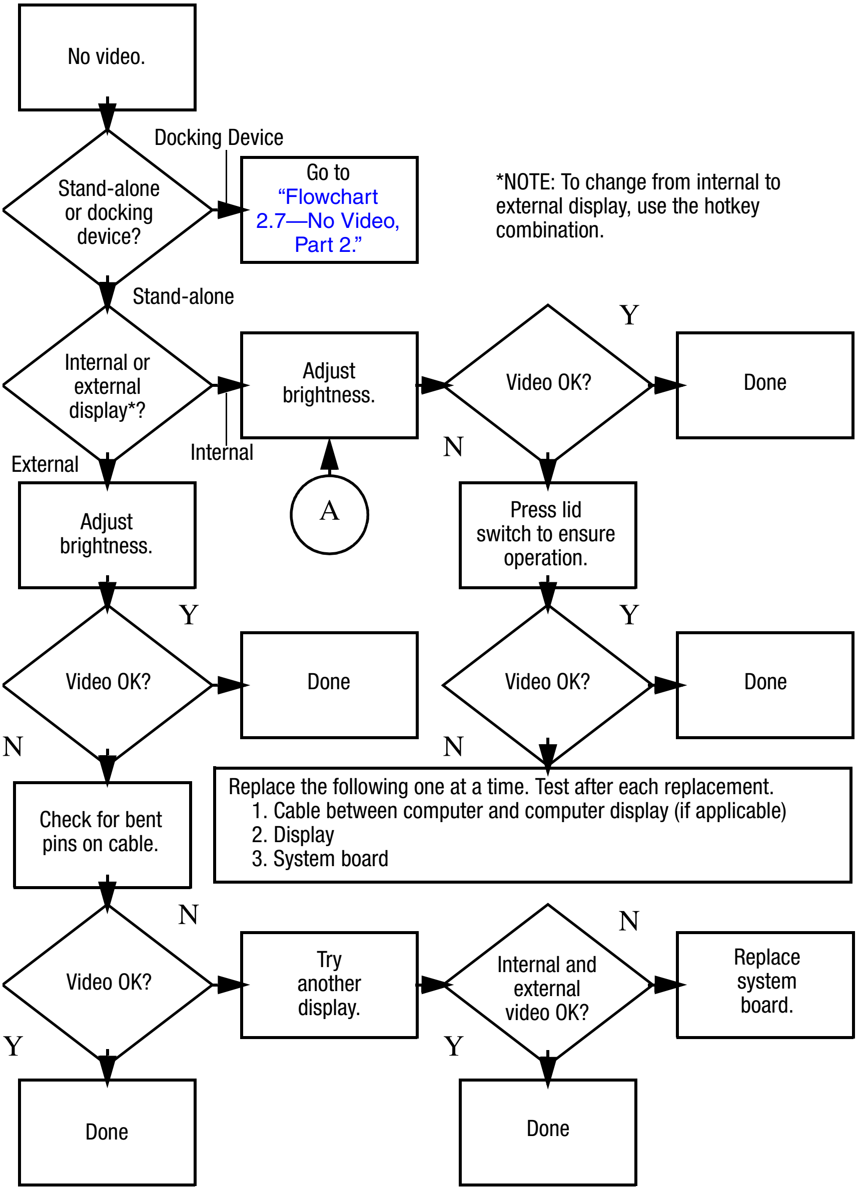
Flowchart 2.4—No Power, Part 3



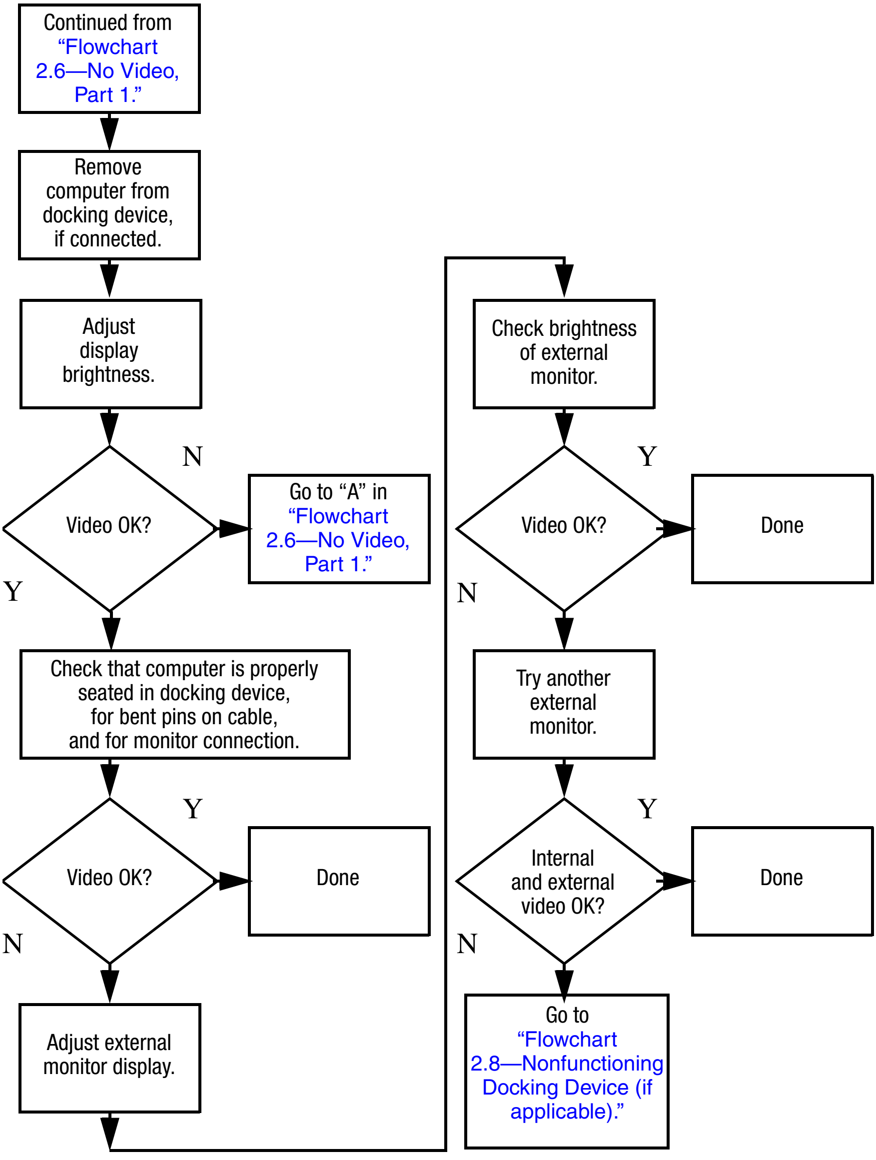
Flowchart 2.5—No Power, Part 4



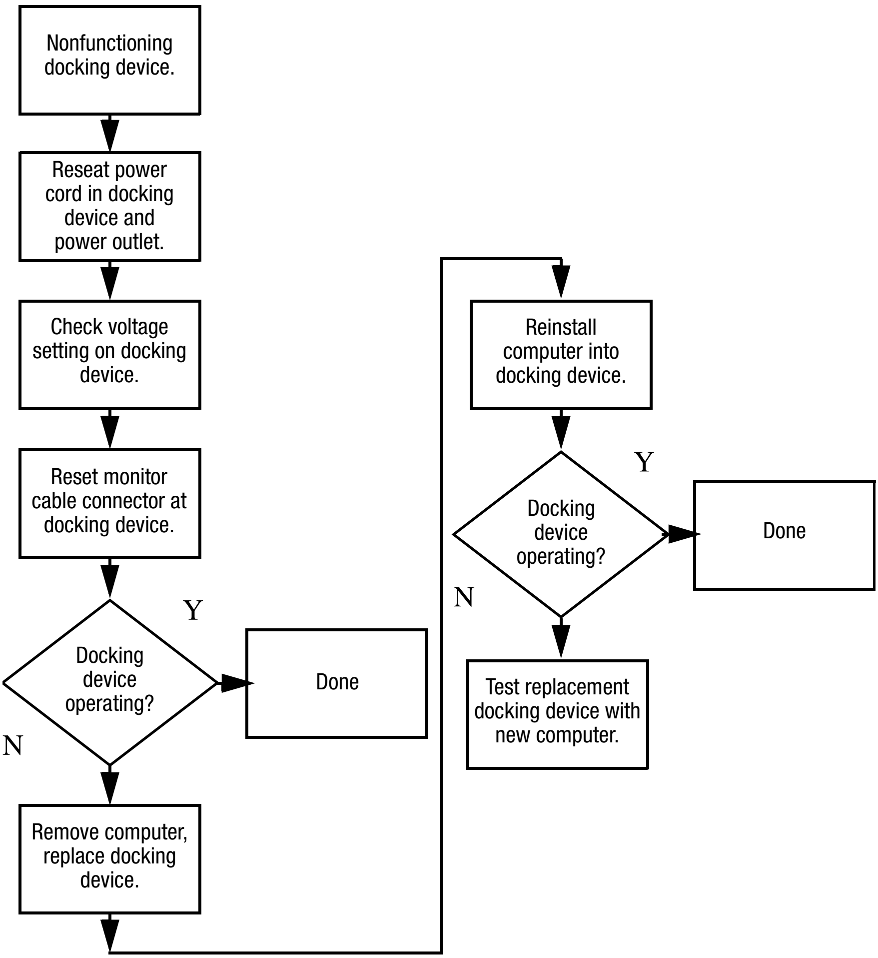
Flowchart 2.6—No Video, Part 1



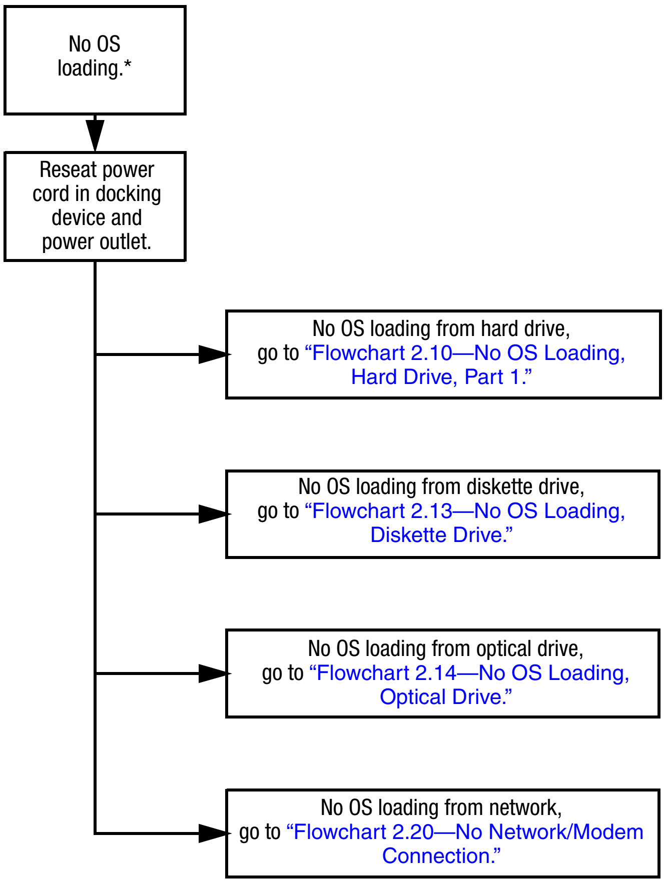
Flowchart 2.7—No Video, Part 2



Flowchart 2.8—Nonfunctioning Docking Device (if applicable)

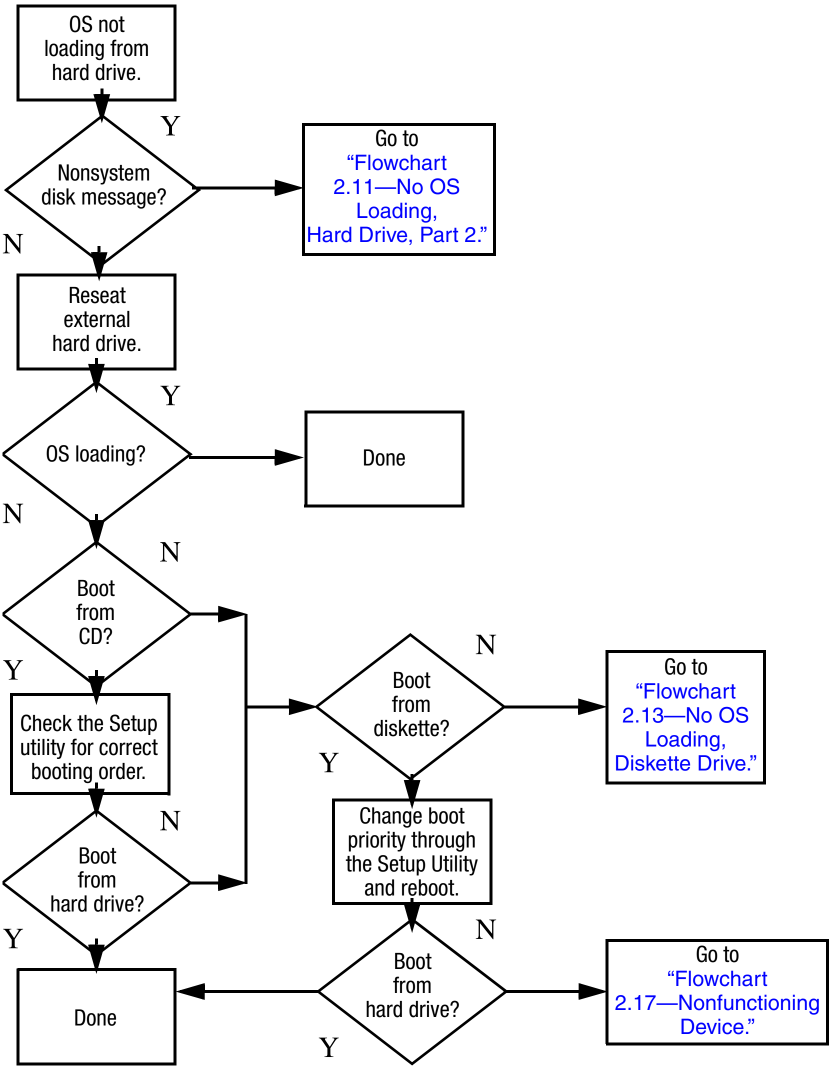


Flowchart 2.9—No Operating System (OS) Loading

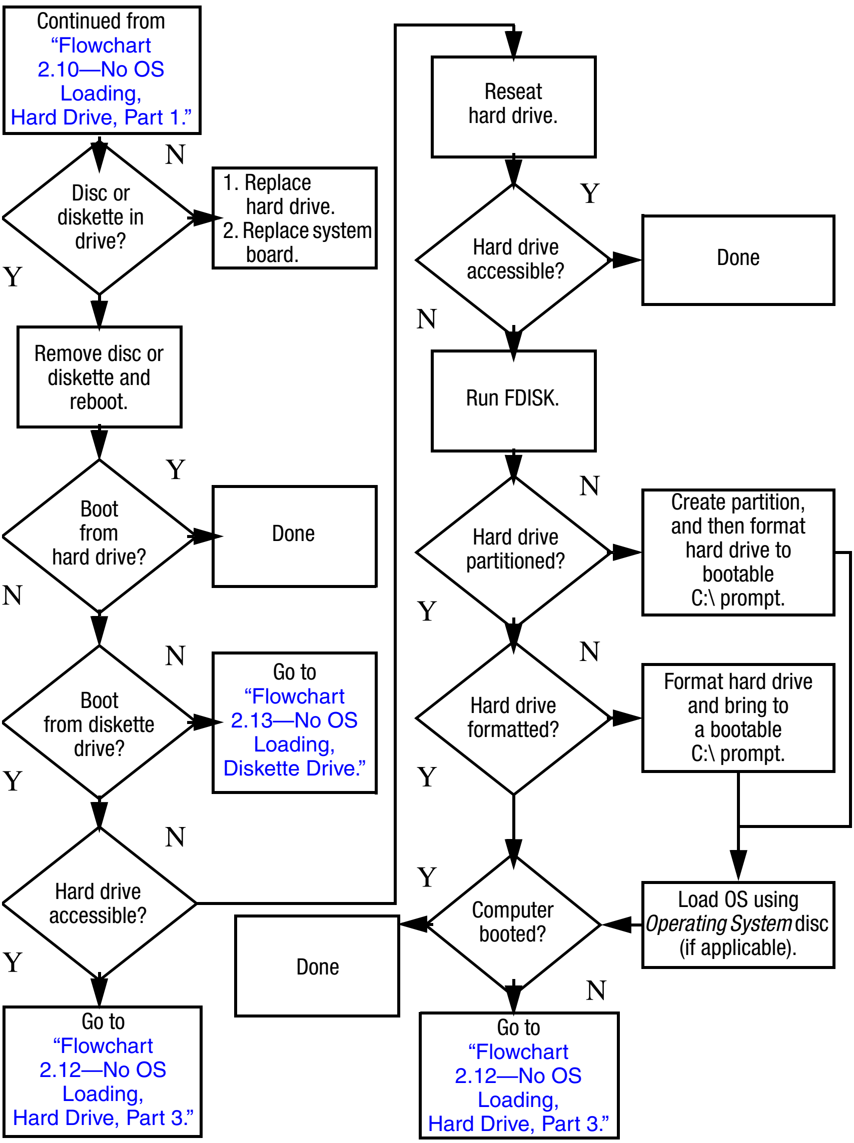


*NOTE: Before beginning troubleshooting, always check cable connections, cable ends, and drives for bent or damaged pins.

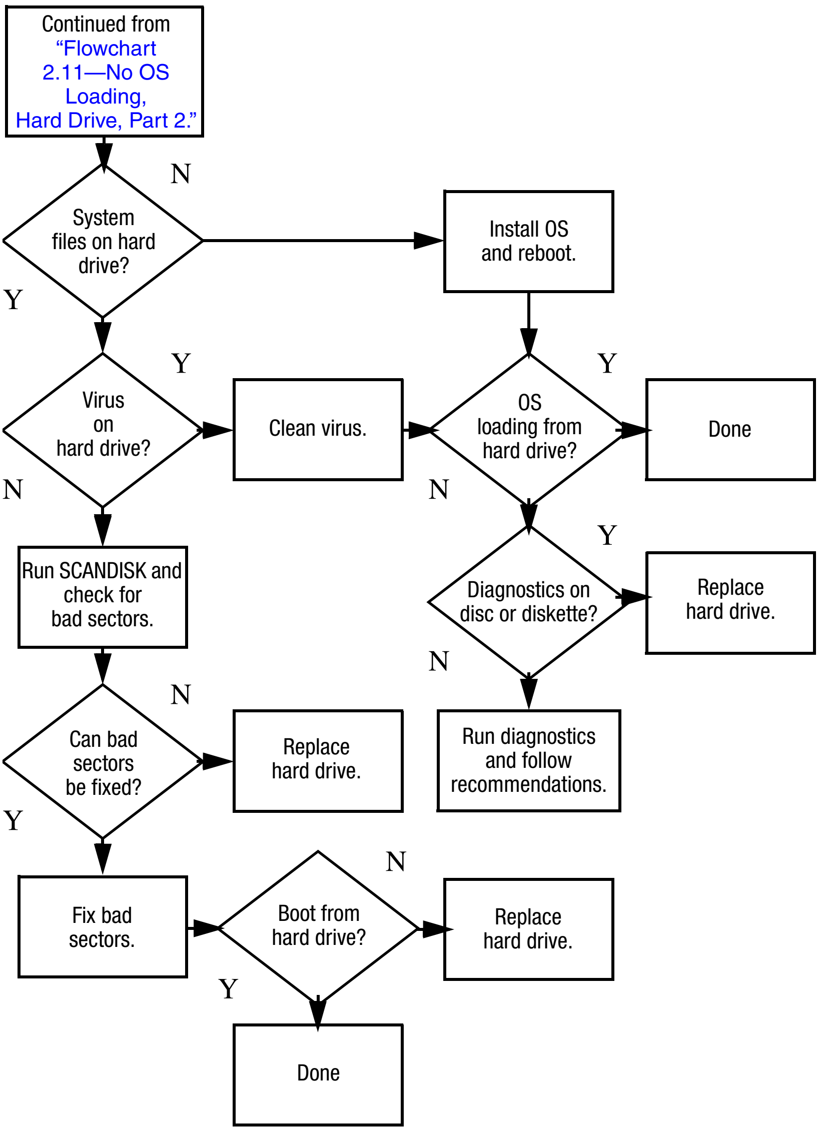
Flowchart 2.10—No OS Loading, Hard Drive, Part 1



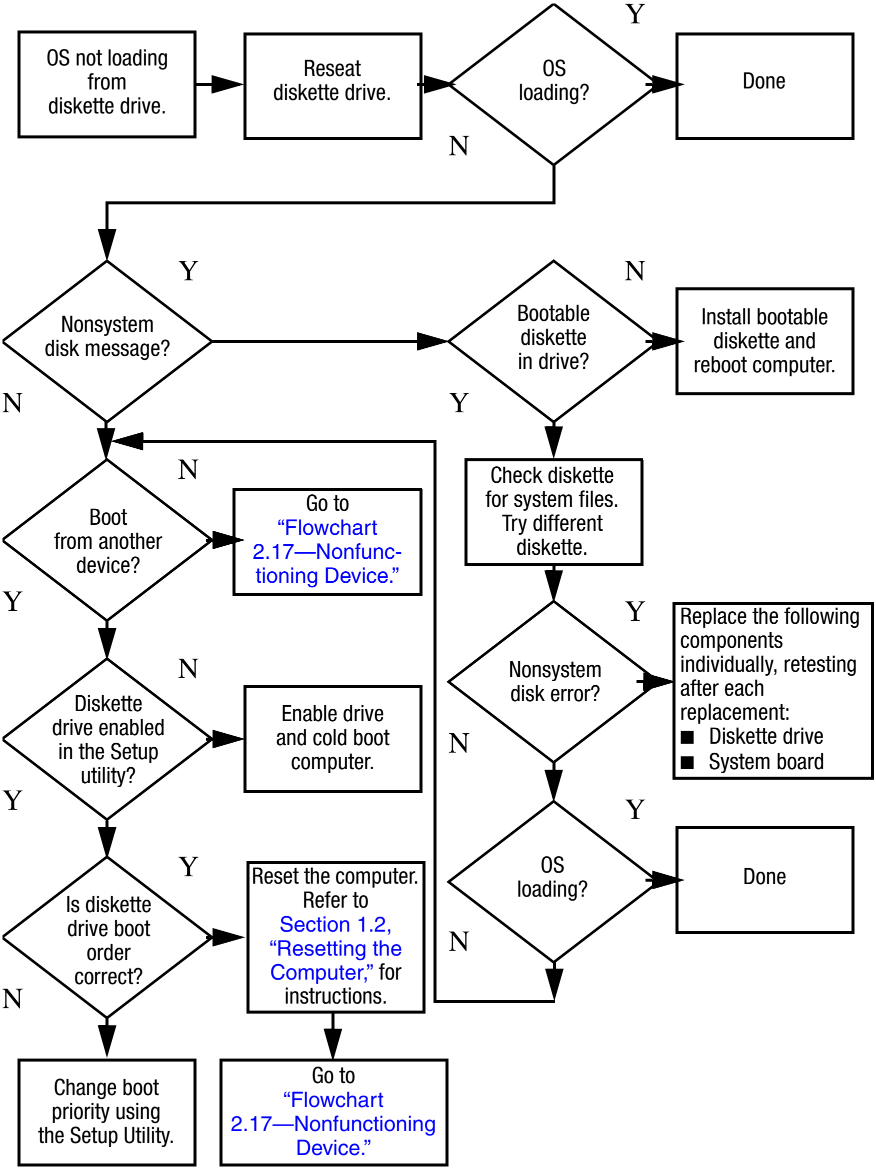
Flowchart 2.11—No OS Loading, Hard Drive, Part 2



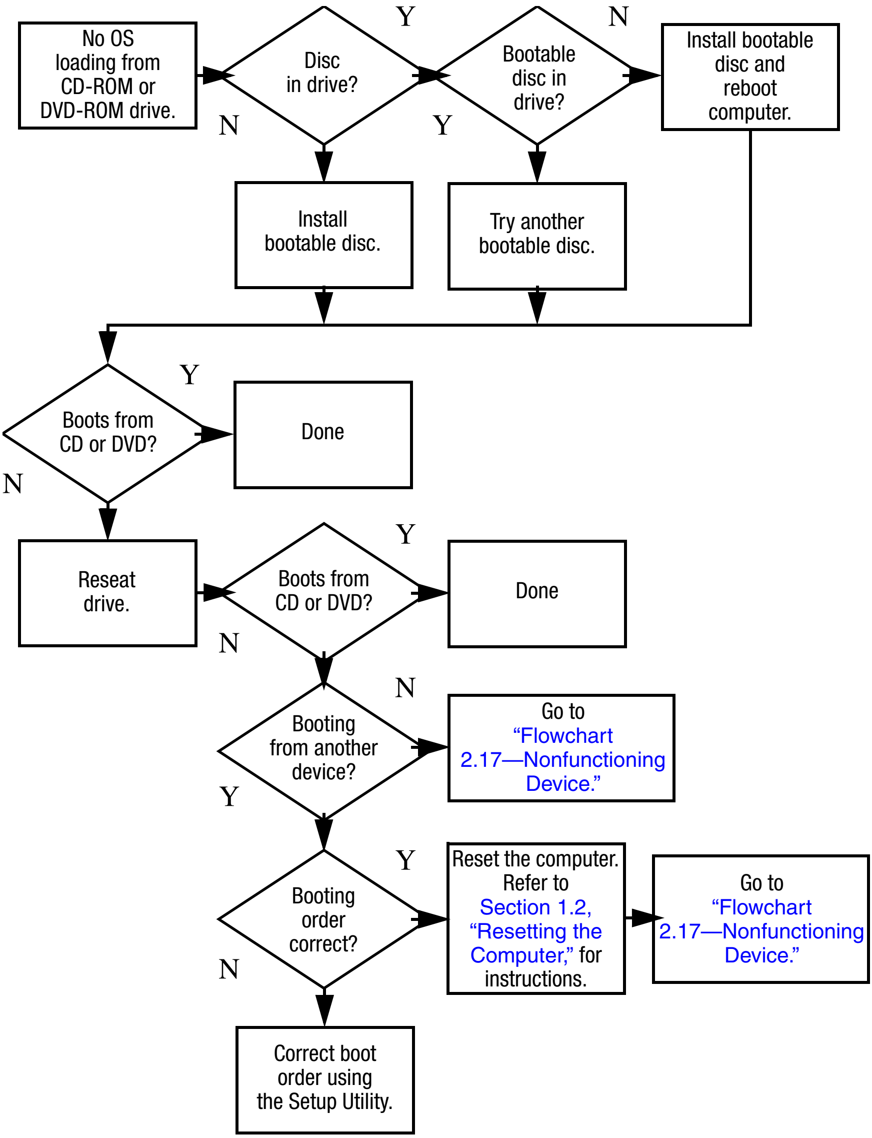
Flowchart 2.12—No OS Loading, Hard Drive, Part 3



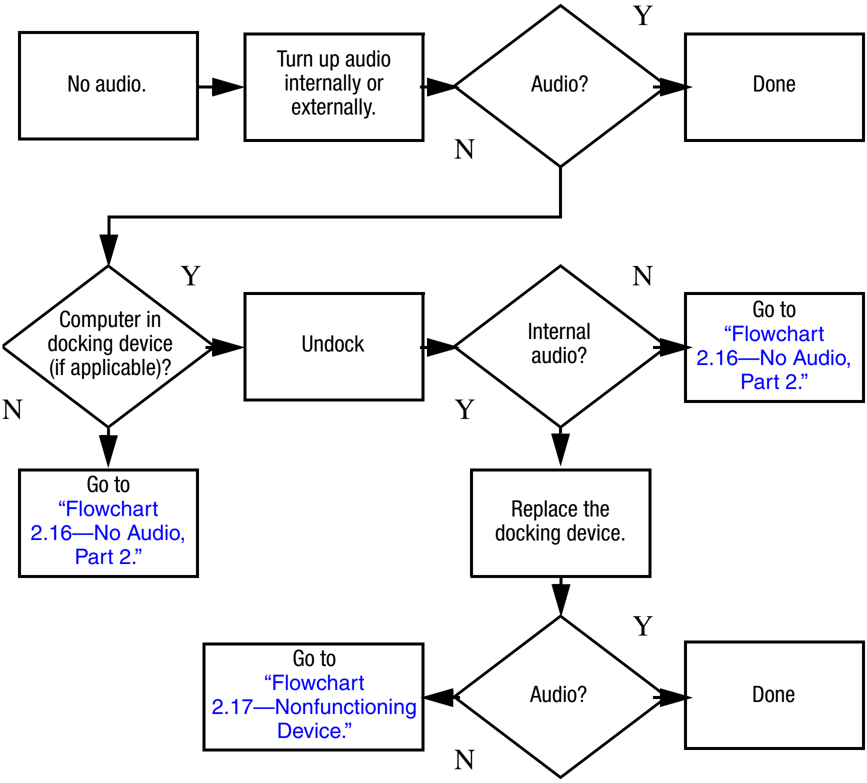
Flowchart 2.13—No OS Loading, Diskette Drive



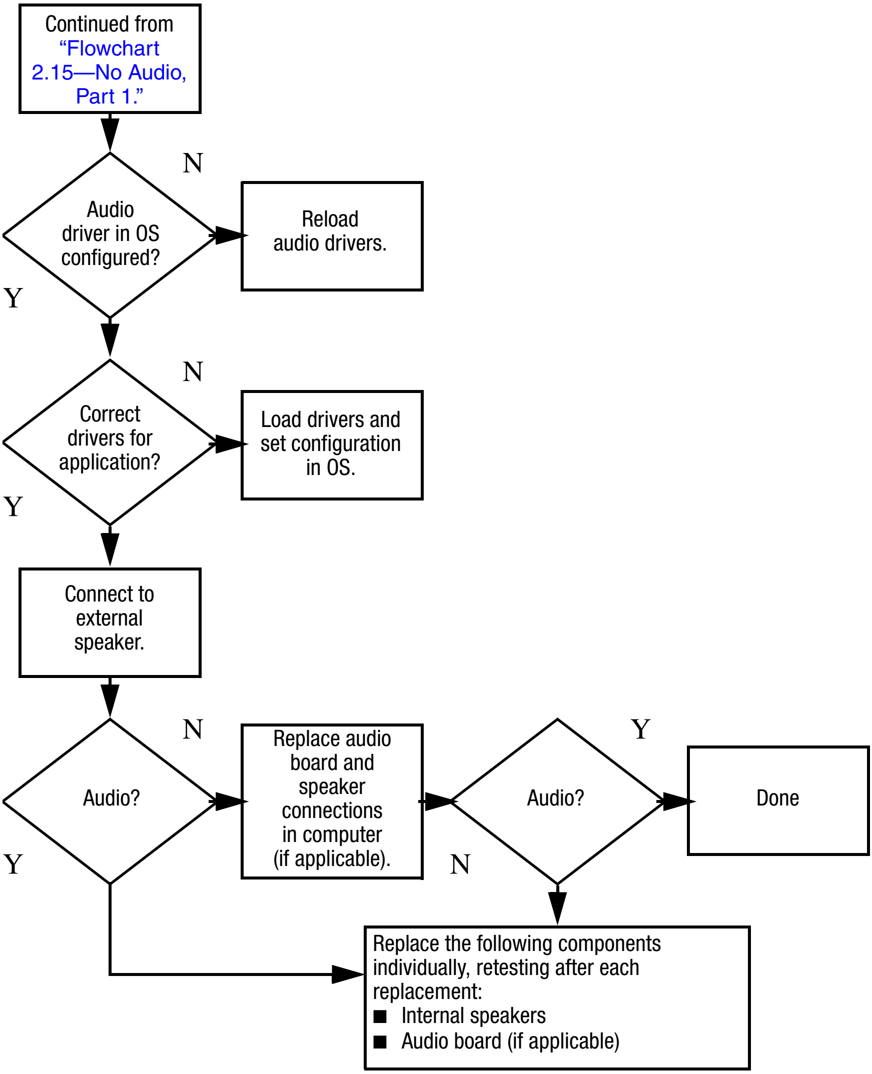
Flowchart 2.14—No OS Loading, Optical Drive



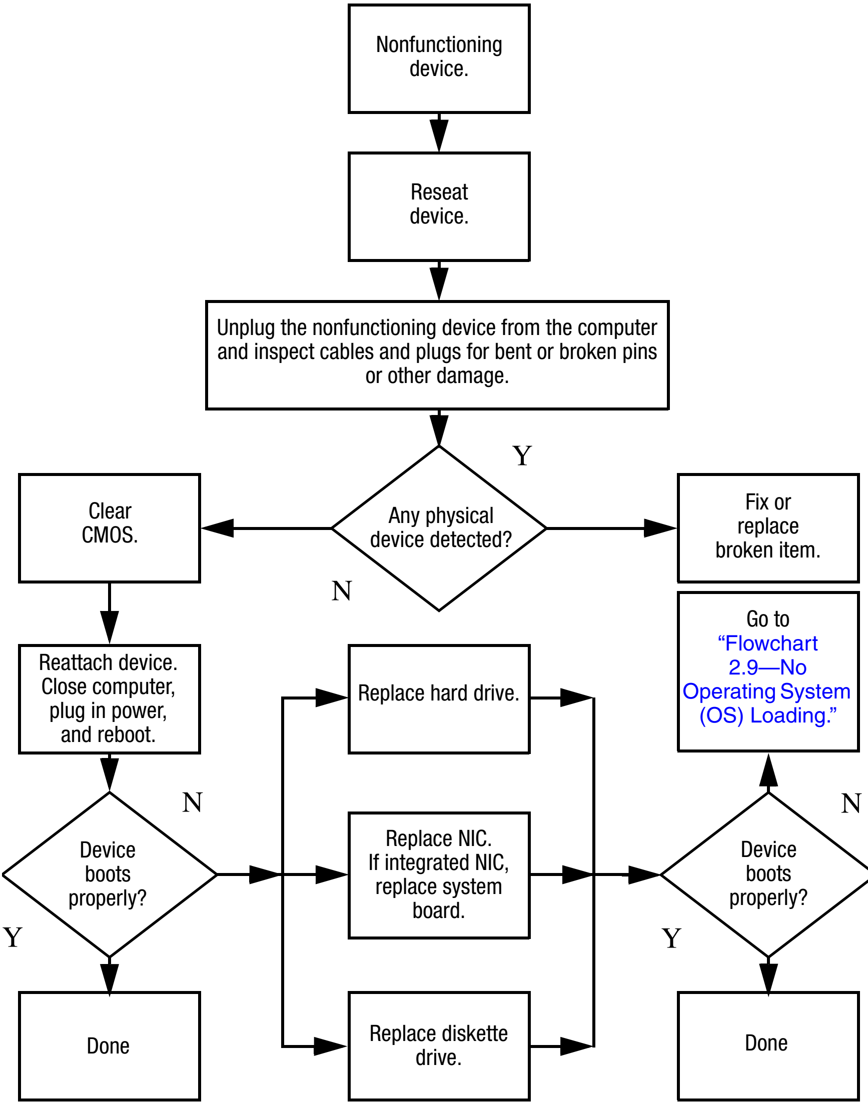
Flowchart 2.15—No Audio, Part 1



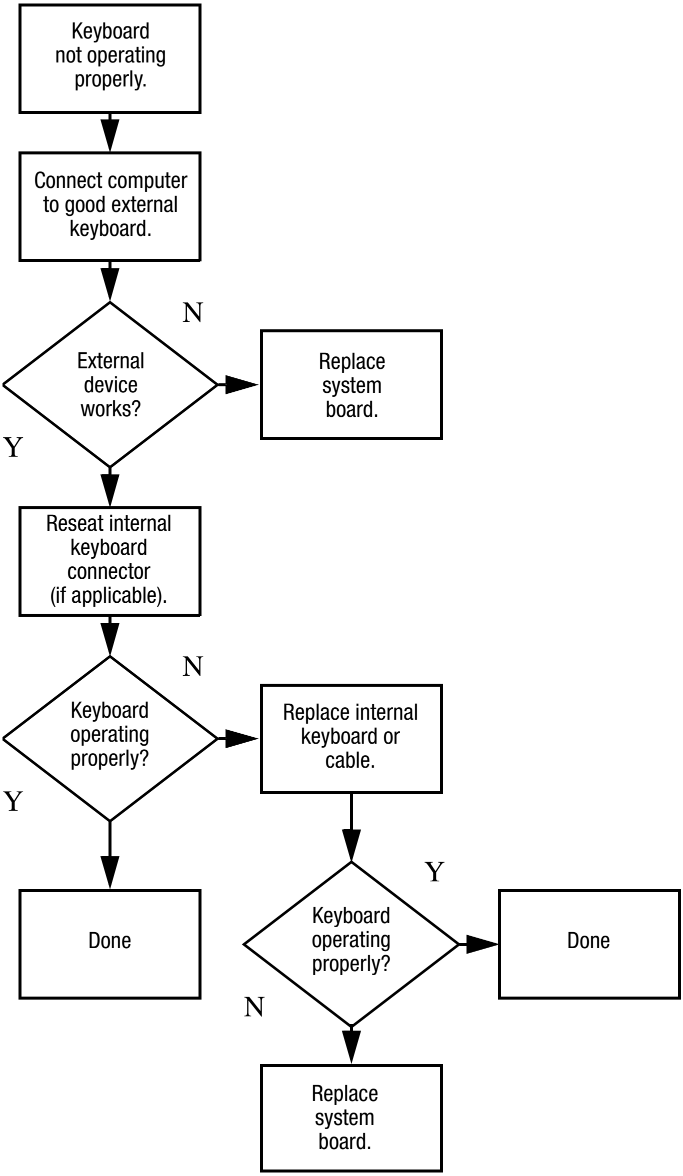
Flowchart 2.16—No Audio, Part 2



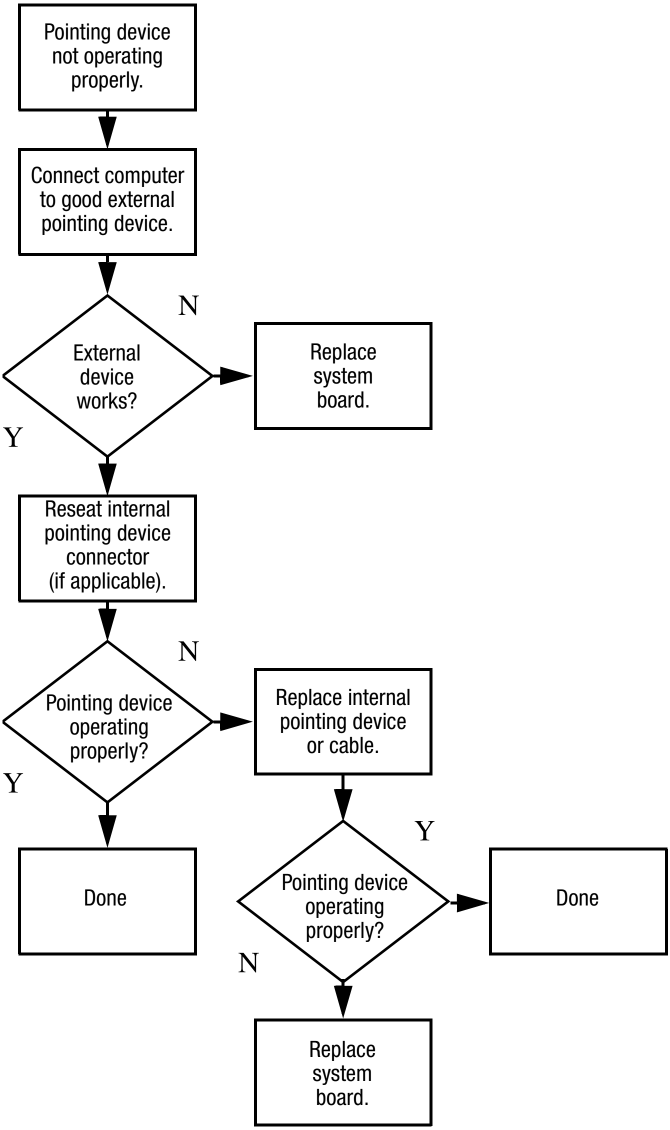
Flowchart 2.17—Nonfunctioning Device



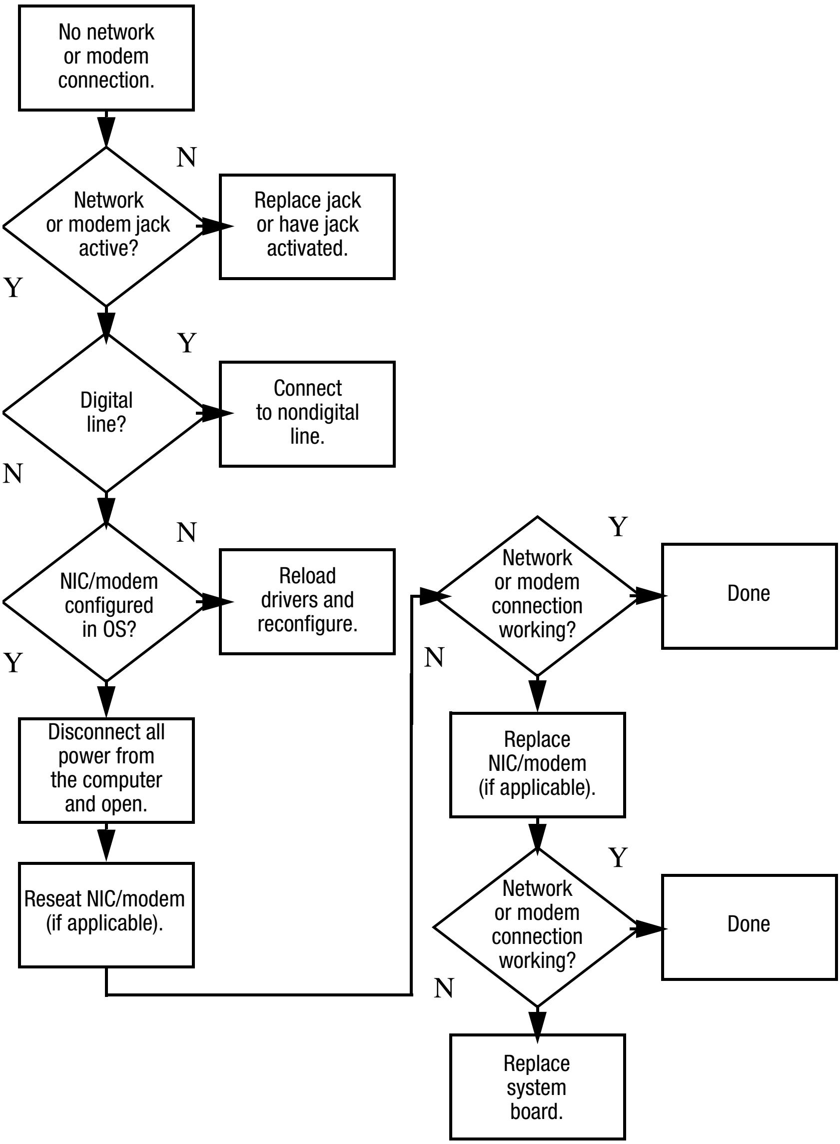
Flowchart 2.18—Nonfunctioning Keyboard



Flowchart 2.19—Nonfunctioning Pointing Device



Flowchart 2.20—No Network/Modem Connection



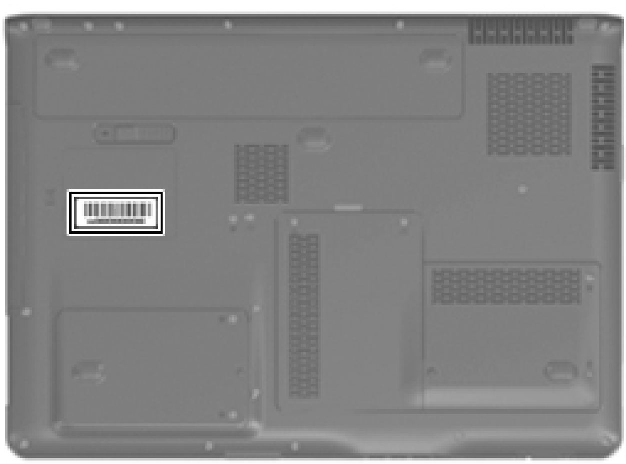
3

Illustrated Parts Catalog

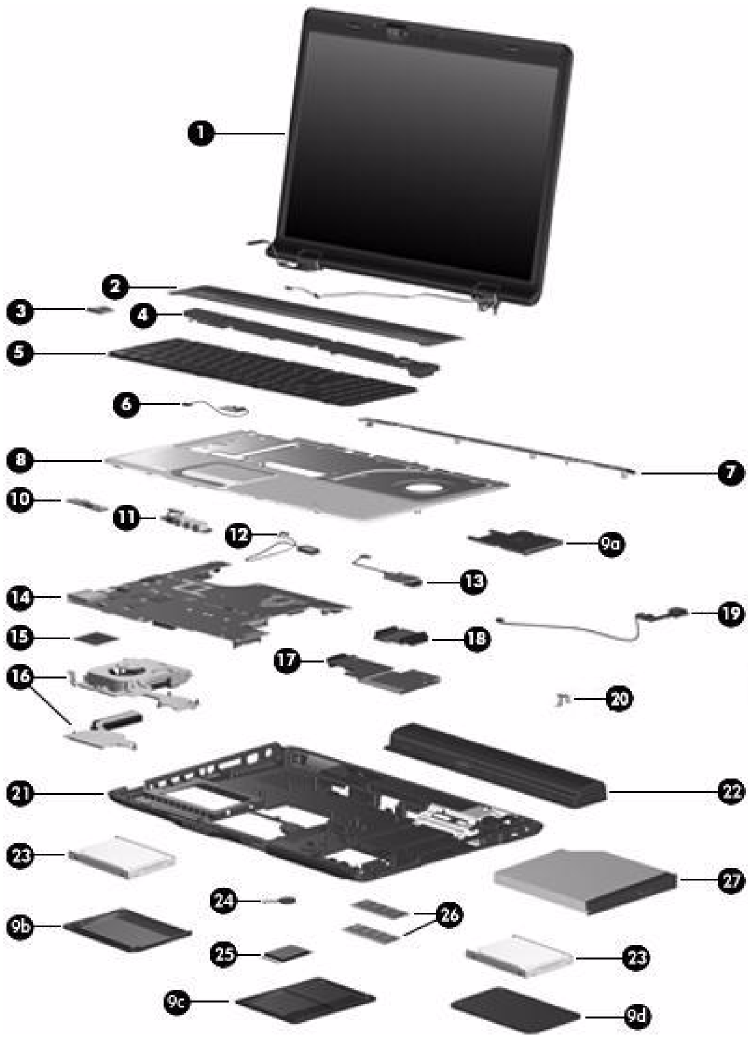
This chapter provides an illustrated parts breakdown and a reference for spare part numbers and option part numbers.

3.1 Serial Number Location

When ordering parts or requesting information, provide the computer serial number and model number located on the bottom of the computer.



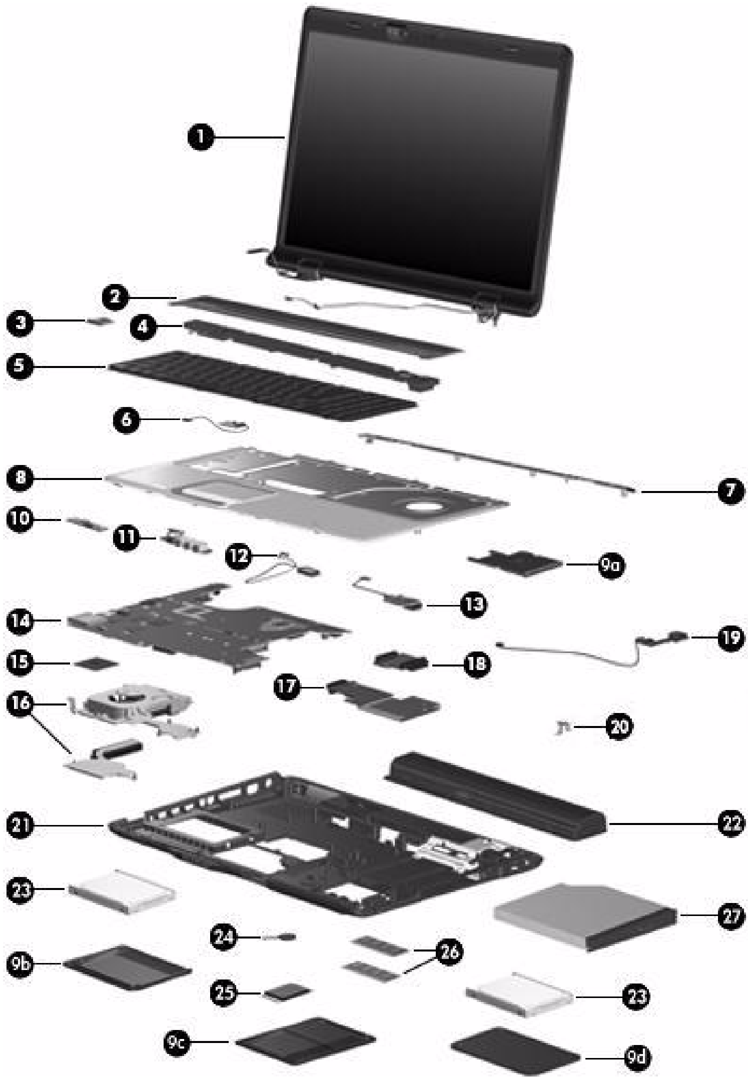
3.2 Computer Major Components



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components

Item	Description	Spare Part Number
1	**Display assemblies** (include wireless antenna transceivers and cables)	
	For use with full-featured computer models (includes camera, camera cable, and microphones):	
	17.0-inch, WXGA+, TFT Dual Lamp with BrightView	432948-001
	17.0-inch, SXGA+, TFT Single Lamp with BrightView	432947-001
	17.0-inch, WXGA+, TFT Single Lamp with BrightView	432946-001
	For use with de-featured computer models (includes microphones):	
	17.0-inch, WXGA+, TFT Dual Lamp with BrightView	432951-001
	17.0-inch, SXGA+, TFT Single Lamp with BrightView	432950-001
	17.0-inch, WXGA+, TFT Single Lamp with BrightView	432949-001
	✎ Refer to Section 3.3, "Display Assembly Components," for display assembly internal component spare part number information.	
2	**Switch cover** (includes LED board and cable)	
	For model dv9200	438319-001
	For model dv9200 (EMEA only)	442920-001
	For model dv9000	432979-001
3	**Power button board** (includes power button board cable)	432987-001
4	**Speaker assembly**	432994-001

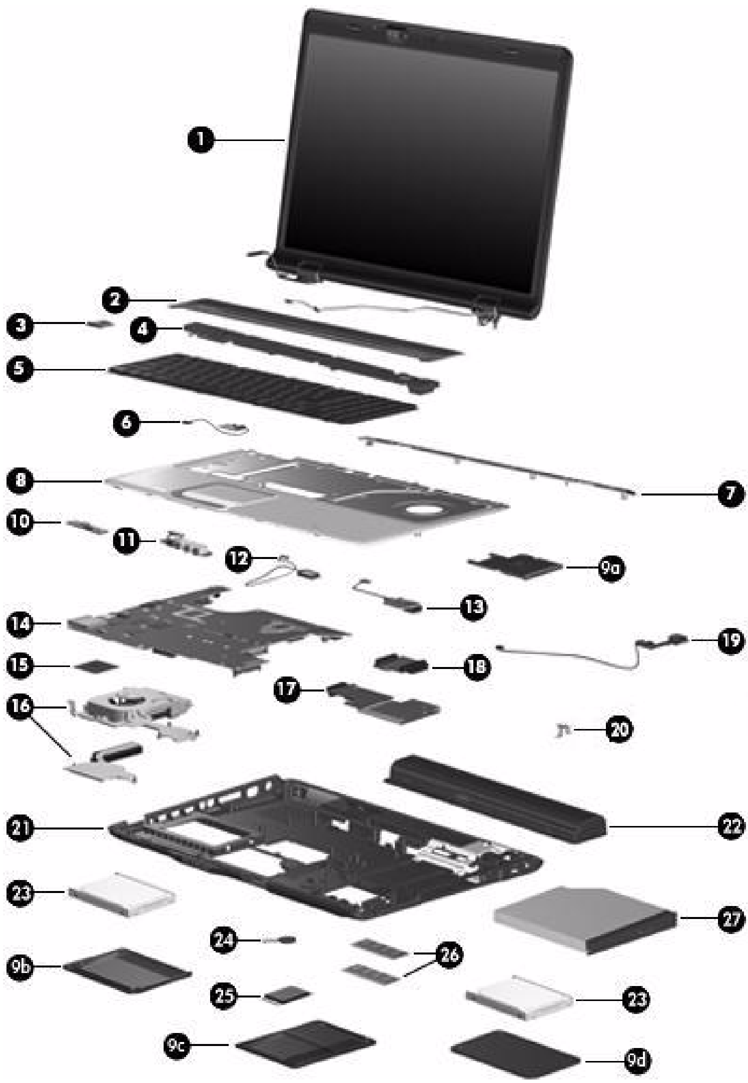


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description				Spare Part Number
5	**Keyboards**				
	For use in the following countries and regions:				
	Belgium	441541-A41	Latin America		441541-161
	Denmark, Finland, Norway, and Sweden	441541-DH1	Netherlands		441541-B31
			Portugal		441541-131
			Russia		441541-251
			Saudi Arabia		441541-171
	France	441541-051	Spain		441541-071
	French Canada	441541-121	Switzerland		441541-111
	Germany	441541-041	Thailand		441541-281
	Greece	441541-151	Turkey		441541-141
	Israel	441541-BB1	United Kingdom		441541-031
	Italy	441541-061	United States		441541-001
	Japan	441541-291			
6	**Display lid switch module** (includes display lid switch module cable)				432993-001
7	**Top cover support trim**				432978-001
8	**Top cover** (includes TouchPad and TouchPad cable)				
	For model dv9200				442919-001
	For model dv9000				432977-001
	Plastics Kit				432981-001
9a	ExpressCard slot bezel				
9b	Left hard drive cover (includes 2 captive screws, secured by C-clips)				
9c	Memory module compartment cover (includes 2 captive screws, secured by C-clips)				
9d	Right hard drive cover (includes 2 captive screws, secured by C-clips)				

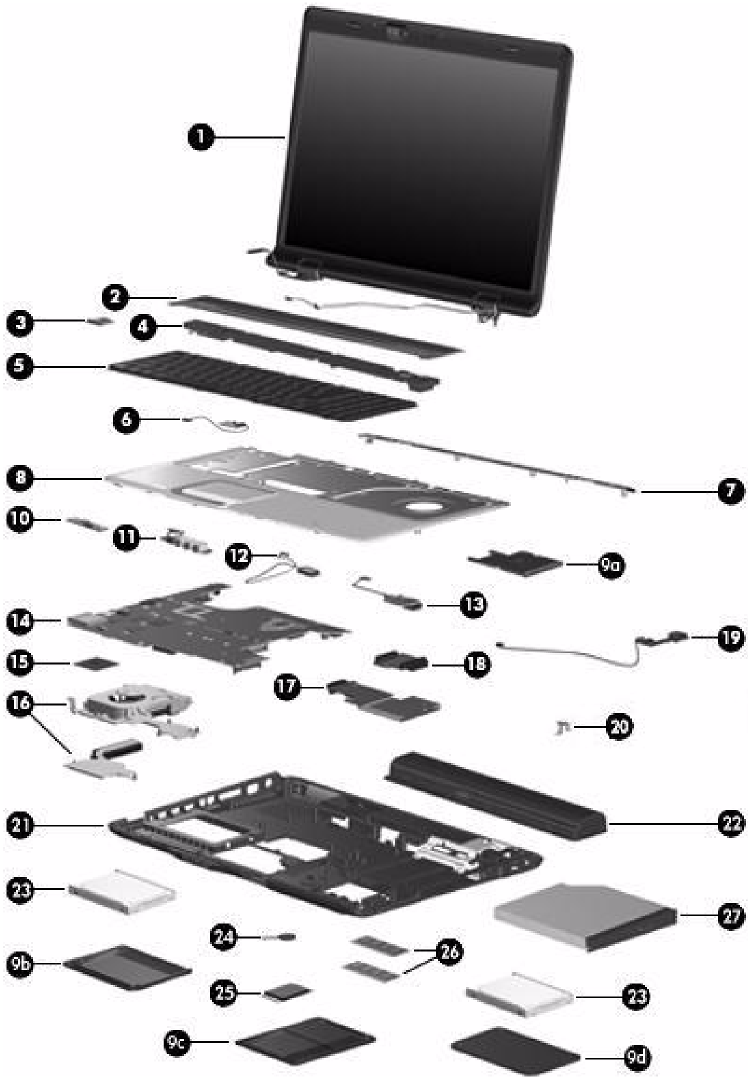


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

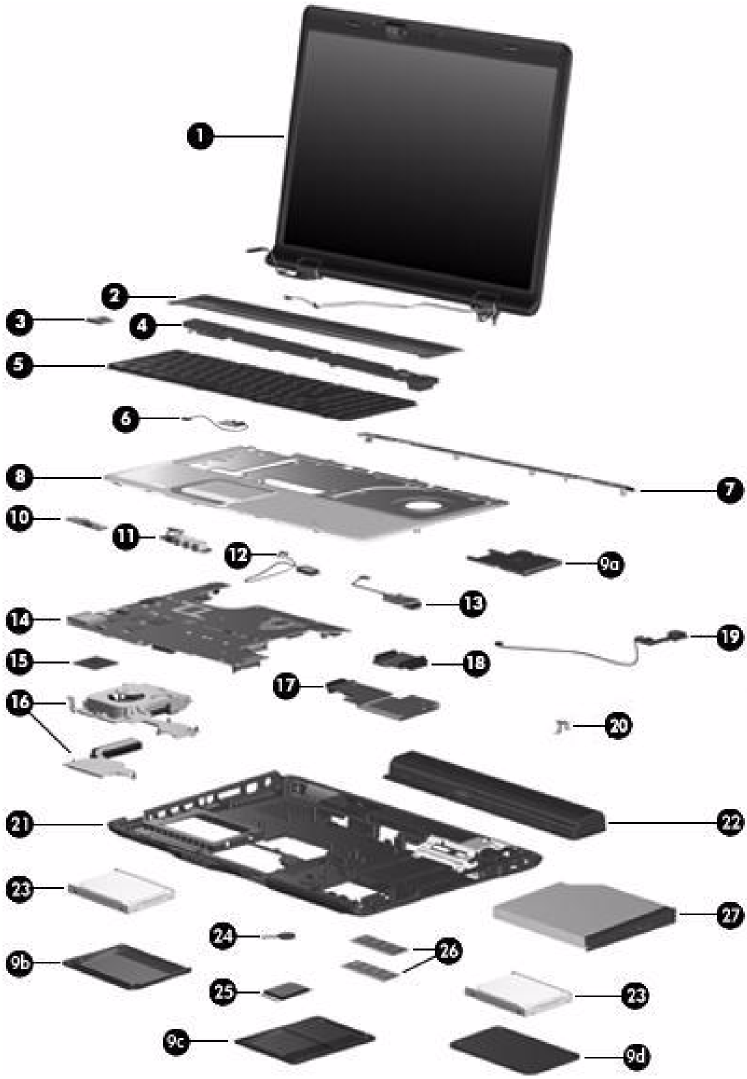
Item	Description	Spare Part Number
10	**Wireless switch board** (includes wireless switch board cable)	432991-001
11	**Audio board** (includes audio board cable and infrared lens)	
	For model dv9200	438369-001
	For model dv9000	432986-001
12	**Bluetooth module** (includes Bluetooth module cable)	412766-002
13	**USB/magnetic board** (includes USB/magnetic board cable)	
	For model dv9200	438370-001
	For model dv9000	432990-001
14	**System boards**	
	For use only with computer models using Intel processors:	
	G73 (includes 512 MB of video RAM)	434660-001
	G73M (includes 256 MB of video RAM)	434659-001
	G73 (includes 512 MB of video RAM) - for Germany only	441620-001
	G73 (includes 256 MB of video RAM) - for Germany only	445178-001
	For use only with computer models using AMD processors	444002-001



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
15	**Processors** (include thermal pad)	
	Intel Core Duo T7200 (2.00-GHz)	434730-001
	Intel Core Duo T5600 (1.83-GHz)	434731-011
	Intel Core Duo T5500 (1.66-GHz) - dv9200 models	436157-001
	Intel Core Duo T5300 (1.73-GHz) - dv9200 models	446814-001
	Intel Core Duo T5200 (1.66-GHz) - dv9200 models	436900-001
	Intel Core Duo T2250 (1.73-GHz) - dv9200 models	430897-001
	Intel Core Duo T2350 (1.86-GHz)	441762-001
	Intel Pentium Dual-Core T2080 (1.73-GHz)	446812-001
	AMD Turion TL-64 (2.2-GHz)	441535-001
	AMD Turion TL-60 (2.0-GHz)	436257-001
	AMD Turion TL-58 (1.9-GHz)	448561-001
	AMD Turion TL-56 (1.8-GHz)	431373-001
	AMD Athlon 64 TK-53 (1.7-GHz)	451013-001
	Processor bracket 7.9 (not illustrated), for use with the following processors: 434730-001 434731-001 436157-001 436900-001 446814-001	450370-001
	Processor bracket 8.1 (not illustrated), for use with the following processors: 430897-001, 446812-001, 441762-001	450371-001
16	**Fan/heat sink assemblies**	
	For use with models using Intel processors	434678-001
	For use with models using AMD processors	438606-001
17	**ExpressCard assembly**	432988-001
18	**Optical drive connector board**	432992-001
19	**USB board** (includes USB board cable)	432989-001
20	**Power connector bracket**	432985-001

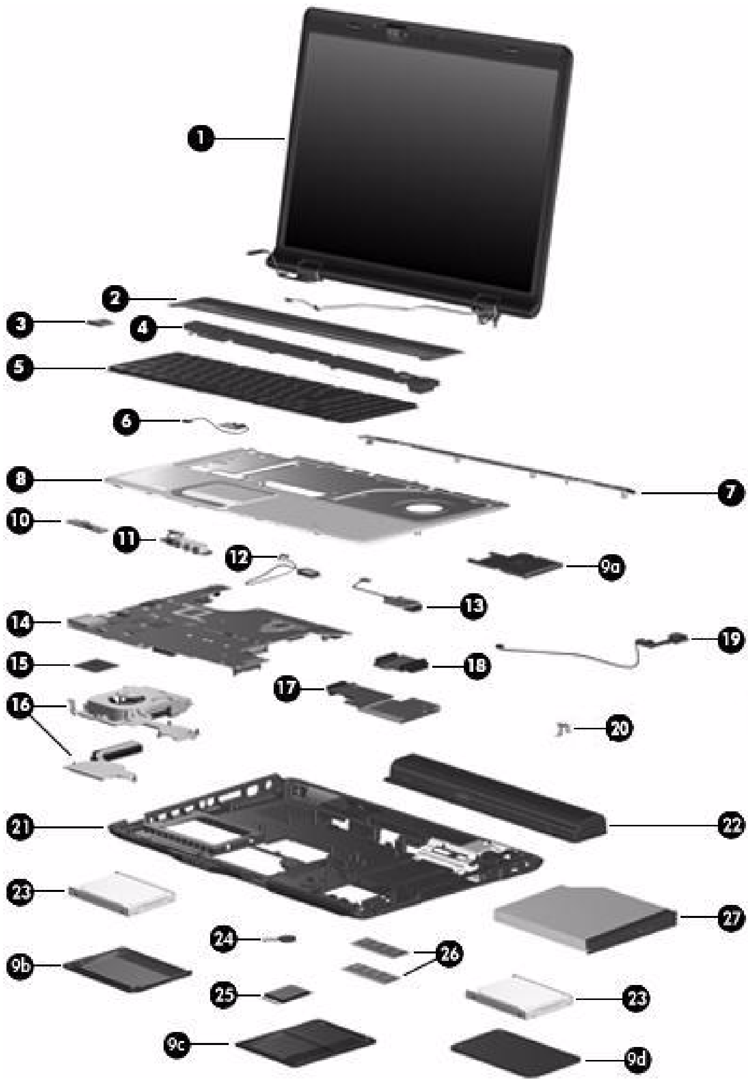


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
21	**Base enclosures** (include wireless switch actuator and power connector)	
	For use only with computer models using Intel processors	436364-001
	For use only with computer models using AMD processors	438605-001
22	**Batteries**	
	8-cell, 4.4-Ahr for use only with computer models using AMD processors	432974-001
	8-cell, 2.2-Ahr	434674-001
23	**Hard drives** (include bracket and connector)	
	For use only with computer models using Intel processors:	
	100-GB (5400-rpm)	432997-001
	100-GB (7200-rpm)	434662-001
	For use with all computer models:	
	200-GB (4200-rpm)	441424-001
	160-GB (5400-rpm)	438485-001
	120-GB (5400-rpm)	432998-001
	100-GB (7200-rpm)	441540-001
	80-GB (5400-rpm)	432996-001
	For use with models using AMD processors:	
	120-MB (7200-rpm)	458116-001
	Hard Drive Bracket Kit (includes the hard drive bracket and screws; not illustrated)	434106-001
24	**RTC battery** (includes 2-sided tape)	431436-001

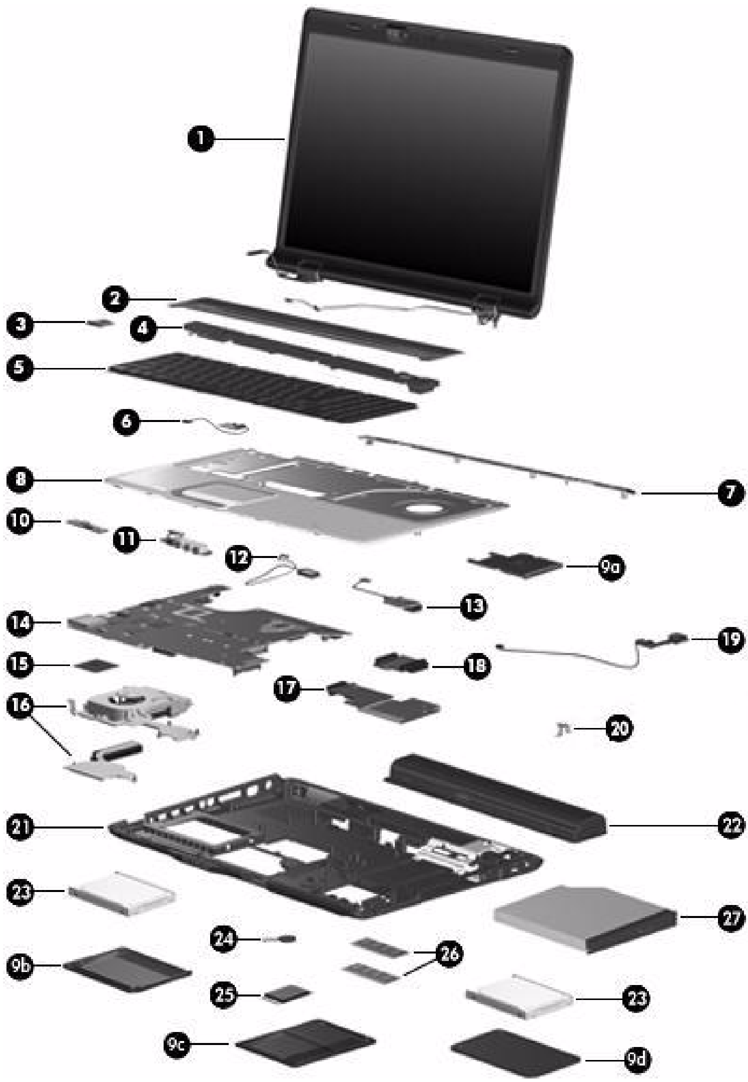


Computer Major Components

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

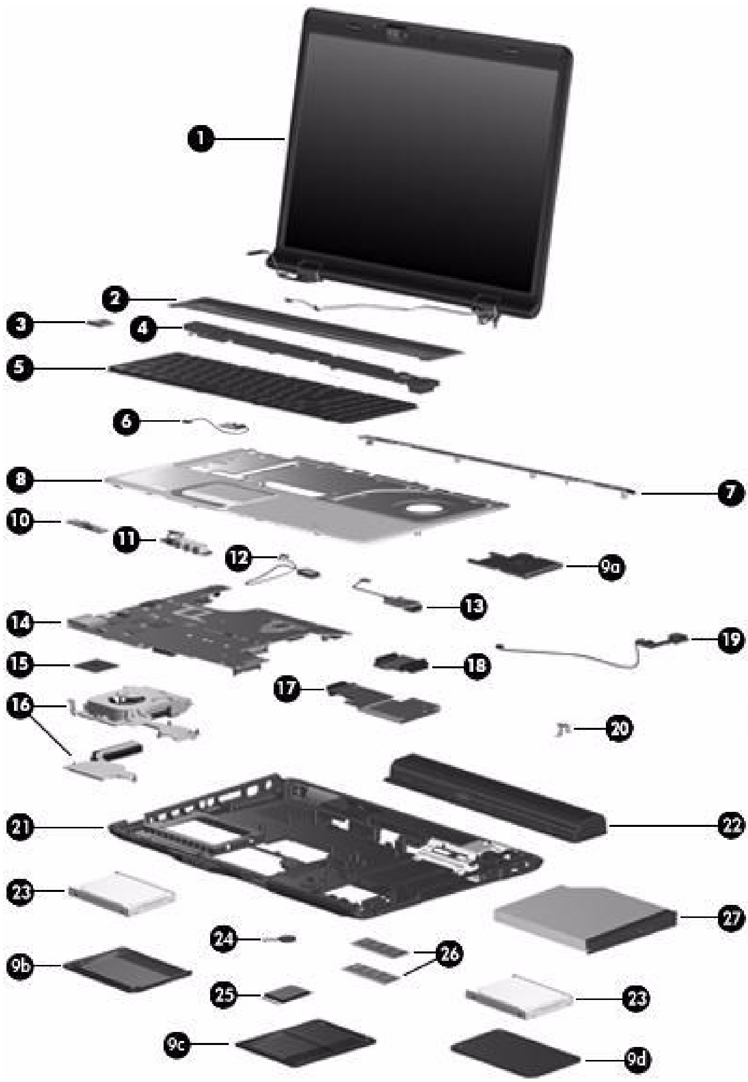
Item	Description			Spare Part Number
25	**Mini Card modules**			
	802.11a/b/g WLAN Mini Card module for use in the countries or regions listed below. These countries and regions are categorized as most of the world1 (MOW1).			407674-001
	Antigua & Barbuda Argentina Australia Bahamas Barbados Brunei	Canada Chile Dominican Republic Guam Guatemala Hong Kong	Panama India Indonesia Malaysia Mexico New Zealand	Paraguay Saudi Arabia Taiwan The United States Vietnam
	802.11a/b/g WLAN Mini Card module for use in the countries or regions listed below. These countries and regions are categorized as most of the world2 (MOW2).			407674-002
	Aruba Austria Azerbaijan Bahrain Belgium Bermuda Bulgaria Cayman Islands Columbia Croatia Cyprus The Czech Republic Denmark	Egypt El Salvador Estonia Finland France Georgia Germany Greece Hungary Iceland Ireland Italy Latvia Lebanon	The Philippines Poland Portugal Romania Russia Serbia and Montenegro Singapore Slovakia Liechtenstein Lithuania Luxembourg Malta Monaco	The Netherlands Norway Oman Slovenia South Africa Spain Sri Lanka Sweden Switzerland Turkey The United Kingdom Uzbekistan



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components *(Continued)*

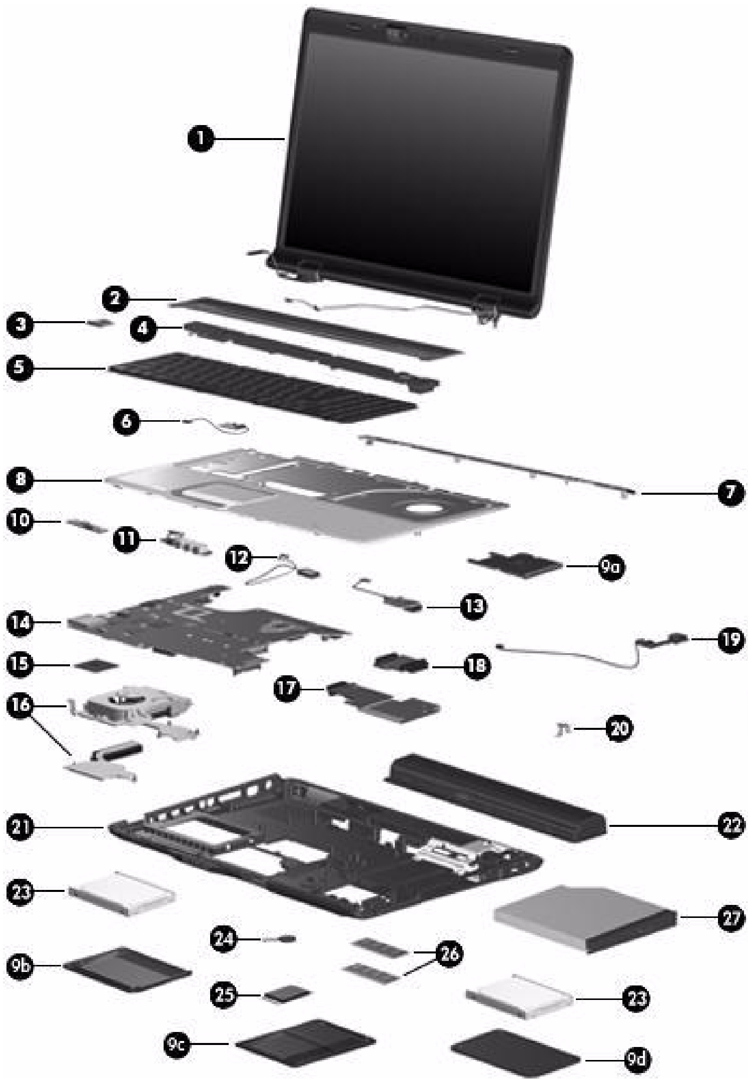
Item	Description	Spare Part Number
25	**Mini Card modules** *(Continued)*	
	802.11a/b/g WLAN Mini Card module for use in the countries or regions listed below. These countries and regions are categorized as most of the world2 (MOW2).	407674-002
	Aruba Austria Azerbaijan Bahrain Belgium Bermuda Bulgaria Cayman Islands Columbia Croatia Cyprus Czech Republic Denmark Egypt El Salvador Estonia Finland France Georgia Germany Greece Hungary Iceland Ireland Italy Latvia Lebanon The Philippines Poland Portugal Romania Russia Serbia and Montenegro Singapore Slovakia Liechtenstein Lithuania Luxembourg Malta Monaco	The Netherlands Norway Oman Slovenia South Africa Spain Sri Lanka Sweden Switzerland Turkey The United Kingdom Uzbekistan
	802.11a/b/g WLAN Mini Card module for use in the countries or regions listed below. These countries and regions are categorized as the rest of the world (ROW).	407674-003
	China Ecuador Haiti Honduras Pakistan Peru Qatar South Korea	Uruguay Venezuela
	802.11b/g WLAN Mini Card module for use in Costa Rica, Israel, Kuwait, Thailand, UAE, Ukraine	407674-004
	802.11a/b/g WLAN Mini Card module for use only in Japan	407674-291



Computer Major Components

Table 3-1
Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
25	**Mini Card modules** *(Continued)*	
	For use only with models using AMD processors:	
	Broadcom 802.11b/g WLAN module for use in most of the world	441090-001
	Broadcom 802.11b/g WLAN module for use the rest of the world	441090-002
	Broadcom 4311AG 802.11a/b/g WLAN module for use in most of the world	441075-001
	Broadcom 4311AG 802.11a/b/g WLAN module for use in the rest of the world	441075-002
	802.11a/b/g EWC WLAN module for use in most of the world	434661-001
	802.11a/b/g EWC WLAN module for use in most of the world	434661-002
26	**Memory modules**, PC-5300, 667-MHz, 1-DIMM	
	For use only with models using Intel processors:	
	1024-MB	434742-001
	512-MB	434741-001
	For use only with models using AMD processors:	
	2048-MB	448003-001
	1024-MB	432970-001
	512-MB	432969-001



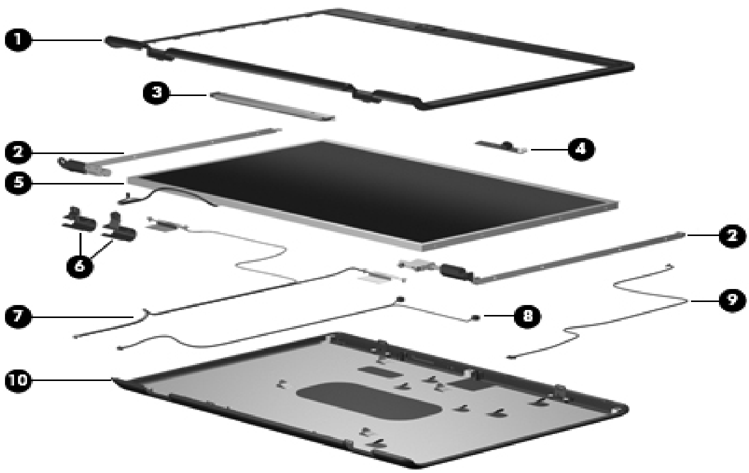
Computer Major Components

Table 3-1

Spare Parts: Computer Major Components *(Continued)*

Item	Description	Spare Part Number
27	**Optical drives** (include bezel)	
	DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe	432973-001
	DVD±RW/R and CD-RW Double-Layer Combo Drive	432972-001
	DVD/CD-RW Combo Drive	434673-001
	Cable Kit (not illustrated), includes:	434677-001
	Audio board cable	
	Bluetooth module cable	
	Display lid switch module cable	
	USB board cable	
	USB/magnetic board cable	
	Rubber Kit (not illustrated), includes:	432982-001
	Rubber feet	
	2nd hard drive door	
	Rubber hinge	
	Display panel bumpers	

3.3 Display Assembly Components



Display Assembly Components

Table 3-2

Display Assembly Components

Spare Part Number Information

Item	Description	Spare Part Number
1	**Display bezels**	
	For use with Dual Lamp display panels with camera	432956-001
	For use with Dual Lamp display panels without camera	436068-001
	For use with Single Lamp display panels with camera	432955-001
	For use with Single Lamp display panels without camera	436067-001

Table 3-2

Display Assembly Components

Spare Part Number Information *(Continued)*

Item	Description	Spare Part Number
2	**Display Hinge Kit** (includes left and right display hinges)	
	For use with Dual Lamp display panels	432964-001
	For use with Single Lamp display panels	432963-001
3	**Display inverters**	
	For use with Dual Lamp display panels	432959-001
	For use with Single Lamp display panels	431391-001
4	**Camera module**	432960-001
5	**Display panels**	
	17.0-inch, WXGA+, TFT Dual Lamp display panel with BrightView	432954-001
	17.0-inch, SXGA+, TFT Single Lamp display panel with BrightView	432953-001
	17.0-inch, WXGA+, TFT Single Lamp display panel with BrightView	432952-001
6	**Display hinge covers**	432965-001
7	**Wireless antenna transceivers and cables**	432966-001
8	**Microphones**	432961-001
9	**Display Cable Kit** (includes camera cable)	432962-001
10	**Display enclosures**	
	For use with Dual Lamp display panels	432958-001
	For use with Single Lamp display panel	432957-001
	Display Screw Kit (includes screws and rubber screw covers, not illustrated)	432967-001

3.4 Mass Storage Devices



Mass Storage Devices

Table 3-3
Mass Storage Devices
Spare Part Number Information

Item	Description	Spare Part Number
1	**Hard drives** (include bracket and connector)	
	For use only with computer models using Intel processors:	
	100-GB (7200-rpm)	434662-001
	100-GB (5400-rpm)	432997-001

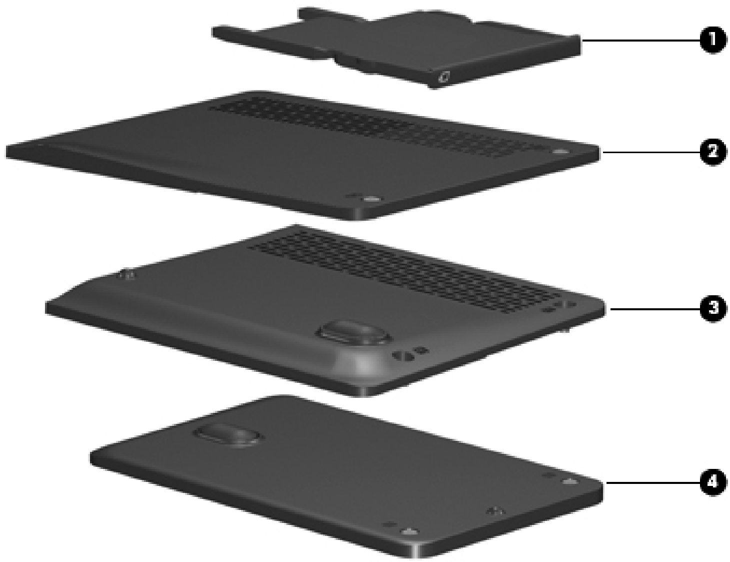
Table 3-3

Mass Storage Devices

Spare Part Number Information *(Continued)*

Item	Description	Spare Part Number
	For use with all computer models	
	200-GB (4200-rpm)	441424-001
	160-GB (5400-rpm)	438485-001
	120-GB (5400-rpm)	432998-001
	100-GB (7200-rpm)	441540-001
	80-GB (5400-rpm)	432996-001
	For use with computer models using AMD processors:	
	120-MB (7200-rpm)	458116-001
1	**Hard drives** (Continued)	
	Hard drive Bracket Kit (not illustrated)	434106-001
	Hard drive bracket rails (APD only) (not illustrated)	437385-001
	Hard drive screws (APD only) (not illustrated)	437386-001
	Hard drive connector (APD only) (not illustrated)	437387-001
2	**Optical drives**	
	DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe	432973-001
	DVD±RW/R and CD-RW Double-Layer Combo Drive	432972-001
	DVD/CD-RW Combo Drive	434673-001

3.5 Plastics Kit

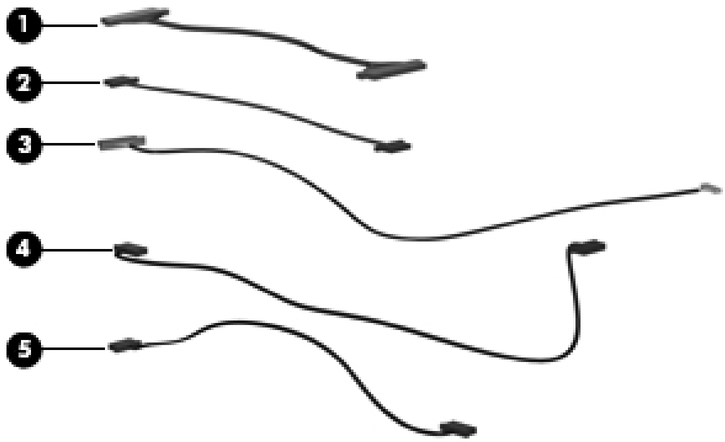


Plastics Kit Components

Table 3-4
Plastics Kit
Spare Part Number Information

Item	Description	Spare Part Number
	Plastics Kit	432981-001
	Includes:	
1	ExpressCard slot bezel	
2	Memory module compartment cover (includes 2 captive screws, secured by C-clips)	
3	Right hard drive cover (includes 2 captive screws, secured by C-clips)	
4	Left hard drive cover (includes 2 captive screws, secured by C-clips)	

3.6 Cable Kit



Cable Kit Components

Table 3-5

Cable Kit

Spare Part Number Information

Item	Description	Spare Part Number
	Cable Kit	434677-001
	Includes:	
1	Audio board cable	
2	Display lid switch module cable	
3	Bluetooth module cable	
4	USB board cable	
5	USB/magnetic board cable	

3.7 Miscellaneous

Table 3-6

Spare Parts: Miscellaneous

Description	Spare Part Number
AC adapters	
HP 90-W PFC AC adapter	432309-001
HP 90-W non-PFC AC adapter	432310-001
Composite S-Video and audio input cable	407939-001
Analog TV tuner	407941-001
Composite S-Video and audio input cable	407939-001
DVB-T TV tuner	412175-001
DVB-T TV tuner antenna	412176-001
DVB-T TV tuner antenna and antenna adapter	412176-002
Ear bud headset	371693-001
Backpack	405527-001
HP Remote Control	407313-001
Logo Kit	432984-001
RF input adapter cable	407940-001
USB digital drive	364727-001
USB travel mouse	435836-001
Optical wired mouse	436238-001
Remote control, ExpressCard (EMEA)	439254-001
Infrared emitter	439129-001
HP Remote Control	435743-001
Remote control, ExpressCard	439128-001

Table 3-6

Spare Parts: Miscellaneous *(Continued)*

Description	Spare Part Number
TV tuner, ExpressCard	439130-001
TV tuner antenna	439131-001
Wireless laser mouse	430958-001
Express card kit, HD-DVD (with driver CD)	445170-001
Power cords for use with all computer models:	
Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden	394279-021
Canada, French Canada, Latin America, Thailand, and the United States	394279-001
Denmark	394279-081
Italy	394279-061
Japan	394279-291
People's Republic of China	394279-AA1
United Kingdom and Hong Kong	394279-031
Power cords for use only with computer models using Intel processors:	
Argentina	394279-D01
Australia and New Zealand	394279-011
India	394279-D61
Israel	394279-BB1
Switzerland	394279-111

Table 3-6

Spare Parts: Miscellaneous *(Continued)*

Description	Spare Part Number
Screw Kit (include the following screws; refer to Appendix A, "Screw Listing," for more information on screw specifications and usage)	
For use only with computer models using Intel processors	434676-001
For use only with computer models using AMD processors	432983-001

- Phillips PM3.0×3.0 screw
- Phillips PM2.5×11.0 screw
- Phillips PM2.5×8.0 screw
- Phillips PM2.5×7.0 screw
- Phillips PM2.5×5.0 screw
- Phillips PM2.5×4.0 screw
- Phillips PM2.0×6.0 Screw
- Phillips PM2.0×5.0 captive screw
- Phillips PM2.0×4.0 screw
- Phillips PM2.0×3.0 screw

3.8 Sequential Part Number Listing

Table 3-7

Spare Parts: Sequential Part Number Listing

Spare Part Number	Description
364727-001	USB digital drive
371693-001	Headset
394279-001	Power cord for use in Canada, French Canada, Latin America, Thailand, and the United States
394279-011	Power cord for use in Australia and New Zealand
394279-021	Power cord for use in Belgium, Europe, Finland, France, Germany, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden
394279-031	Power cord for use in the United Kingdom and Hong Kong
394279-061	Power cord for use in Italy
394279-081	Power cord for use in Denmark
394279-111	Power cord for use in Switzerland
394279-291	Power cord for use in Japan
394279-AA1	Power cord for use in The People's Republic of China
394279-BB1	Power cord for use in Israel
394279-D01	Power cord for use in Argentina
394279-D61	Power cord for use in India
405527-001	HP Backpack
407313-001	HP Remote Control

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

407674-001	802.11a/b/g WLAN Mini Card module for use in the MOW1 countries and regions listed below: Antigua & Barbuda Argentina Australia Bahamas Barbados Brunei Canada Chile Dominican Republic Guam Guatemala Hong Kong Panama India Indonesia Malaysia Mexico New Zealand Paraguay Saudi Arabia Taiwan The United States Vietnam
407674-002	802.11a/b/g WLAN Mini Card module for use in the MOW2 countries and regions listed below: Aruba Austria Azerbaijan Bahrain Belgium Bermuda Bulgaria Cayman Islands Columbia Croatia Cyprus The Czech Republic Denmark Egypt El Salvador Estonia Finland France Georgia Germany Greece Hungary Iceland Ireland Italy Latvia Lebanon The Philippines Poland Portugal Romania Russia Serbia and Montenegro Singapore Slovakia Liechtenstein Lithuania Luxembourg Malta Monaco The Netherlands Norway Oman Slovenia South Africa Spain Sri Lanka Sweden Switzerland Turkey The United Kingdom Uzbekistan

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
407674-003	802.11a/b/g WLAN Mini Card module for use in the ROW countries and regions listed below: China, Ecuador, Haiti, Honduras, Pakistan, Peru, Qatar, South Korea
407674-004	802.11b/g WLAN Mini Card module for use in Costa Rica, Israel, Kuwait, Thailand, UAE, Ukraine
407674-291	802.11a/b/g WLAN Mini Card module for use only in Japan
407939-001	Composite S-Video and audio input cable
407940-001	RF input adapter cable
412175-001	DVB-T TV tuner
412176-001	DVB-T TV tuner antenna
412176-002	DVB-T TV tuner antenna and antenna adapter
412766-002	Bluetooth module (includes Bluetooth module cable)
430897-001	Intel Core Duo T2250 (1.73-GHz) processor (includes thermal pad), for dv9200 models
430958-001	Wireless laser mouse
431373-001	AMD Turion ML-56 1.8-GHz processor
431391-001	Display inverter for use with Single Lamp display panels
431436-001	RTC battery (includes 2-sided tape)
432309-001	HP 90W PFC AC adapter
432310-001	HP 90-W non-PFC AC adapter
432946-001	17.0-inch, WXGA+, TFT Single Lamp display assembly with BrightView (includes camera, camera cable, microphones, wireless antenna transceivers, and cables)

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
432947-001	17.0-inch, SXGA+, TFT Single Lamp display assembly with BrightView (includes camera, camera cable, microphones, wireless antenna transceivers, and cables)
432948-001	17.0-inch, WXGA+, TFT Dual Lamp display assembly with BrightView for use with full-featured computer models (includes camera, camera cable, microphones, wireless antenna transceivers, and cables)
432949-001	17.0-inch, WXGA+, TFT Single Lamp display assembly with BrightView (includes microphones, wireless antenna transceivers, and cables)
432950-001	17.0-inch, SXGA+, TFT Single Lamp display assembly with BrightView (includes microphones, wireless antenna transceivers, and cables)
432951-001	17.0-inch, WXGA+, TFT Dual Lamp display assembly with BrightView for use with de-featured computer models (includes microphones, wireless antenna transceivers, and cables)
432952-001	17.0-inch, WXGA+, TFT Single Lamp display panel with BrightView
432953-001	17.0-inch, SXGA+, TFT Single Lamp display panel with BrightView
432954-001	17.0-inch, WXGA+, TFT Dual Lamp display panel with BrightView
432955-001	Display bezel for use with Single Lamp display panels with camera
432956-001	Display bezel for use with Dual Lamp display panels with camera
432957-001	Display enclosure for use with Single Lamp display panel
432958-001	Display enclosure for use with Dual Lamp display panels

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
432959-001	Display inverter for use with Dual Lamp display panels
432960-001	Camera module
432961-001	Microphones
432962-001	Display Cable Kit (includes camera cable)
432963-001	Display Hinge Kit for use with Single Lamp display panels (includes left and right display hinges)
432964-001	Display Hinge Kit for use with Dual Lamp display panels (includes left and right display hinges)
432965-001	Display hinge covers
432966-001	Wireless antenna transceivers and cables
432967-001	Display Screw Kit (includes screws and rubber screw covers)
432969-001	512-MB memory module, PC-5300, 667-MHz, 1-DIMM for use only with models using AMD processors
432970-001	1024-MB memory module, PC-5300, 667-MHz, 1-DIMM for use only with models using AMD processors
432972-001	DVD±RW/R and CD-RW Double-Layer Combo Drive
432973-001	DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe
432974-001	8-cell, 4.4-Ahr battery
432977-001	Top cover (includes TouchPad and TouchPad cable) for model dv9000
432978-001	Top cover support trim
432979-001	**Switch cover** (includes LED board and cable) for model dv9000
432981-001	Plastics Kit

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

432982-001	Rubber kit for models with AMD processors
432983-001	Escrow Kit for use only with computer models using AMD processors
432984-001	Olga Kit
432985-001	Power connector bracket
432986-001	Audio board (includes audio board cable and infrared lens) for model dv9000
432987-001	Power button board (includes power button board cable)
432988-001	ExpressCard assembly
432989-001	USB board (includes USB board cable)
432990-001	USB/magnetic board (includes USB/magnetic board cable) for model dv9000
432991-001	Wireless switch board (includes wireless switch board cable)
432992-001	Optical drive connector board
432993-001	Display lid switch module (includes display lid switch module cable)
432994-001	Speaker assembly
432996-001	80-GB, 5400-rpm hard drive (includes bracket and connector) for use with all computer models
432997-001	100-GB, 5400-rpm hard drive (includes bracket and connector) for use only with computer models with Intel processors
432998-001	120-GB, 5400-rpm hard drive (includes bracket and connector) for use with all computer models
434106-001	Hard Drive Bracket Kit
434659-001	G73M system board for use in models with Intel processors (includes 256-MB of video RAM and thermal pad)

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
434660-001	G73 system board for use in models with Intel processors (includes 512-MB of video RAM and thermal pad)
434661-001	802.11a/b/g EWC WLAN module for use in most of the world
434661-002	802.11a/b/g EWC WLAN module for use in the rest of the world
434662-001	100-GB, 7200-rpm hard drive (includes bracket and connector) for use only with computer models using Intel processors
434673-001	DVD/CD-RW Combo Drive
434674-001	8-cell, 2.2-Ahr battery
434676-001	Screw Kit for use only with computer models using Intel processors
434677-001	Cable Kit
434678-001	Fan/heat sink assembly for use in computer models with Intel processors (includes thermal pad)
434730-001	Intel Core Duo T7200 (2.0-GHz) processor (includes thermal pad)
434731-001	Intel Core Duo T5600 (1.8-GHz) processor (includes thermal pad)
434741-001	512-MB memory module, PC-5300, 667-MHz, 1-DIMM for use only with models using Intel processors
434742-001	1024-MB memory module, PC-5300, 667-MHz, 1-DIMM for use only with models using Intel processors
435743-001	HP Remote Control
435836-001	USB travel mouse
436067-001	Display bezel for use with Single Lamp display panels without camera

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

436068-001	Display bezel for use with Dual Lamp display panels without camera
436157-001	Intel Core Duo T5500 (1.66-GHz) processor (includes thermal pad), for use with dv9200 models
436238-001	Optical wired mouse
436257-001	AMD Turion ML-60 2.0-GHz processor
436364-001	Base enclosure (includes wireless switch actuator and power connector)
436900-001	Intel Core Duo T5200 (1.66-GHz) processor (includes thermal pad), for use with dv9200 models
437385-001	Hard drive bracket rails (APD only)
437386-001	Hard drive screws (APD only)
437387-001	Hard drive connector (APD only)
438319-001	Switch cover (includes LED board and LED board cable) for model dv9200
438369-001	Audio board (includes audio board cable and infrared lens) for model dv9200
438370-001	USB/magnetic board (includes USB/magnetic board cable) for model dv9200
438485-001	I160-GB (5400-rpm) hard drive for use with all computer models
438605-001	Base enclosure for use only with computer models using AMD processors (includes power connector)
438606-001	Fansink assembly for use only with computer models using AMD processors
439128-001	Remote control, ExpressCard
439129-001	Infrared emitter
439130-001	TV tuner, ExpressCard

Table 3-7
Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
439131-001	TV tuner antenna
439254-001	Remote control, ExpressCard (EMEA)
441075-001	Broadcom 4311AG 802.11a/b/g WLAN module for use in most of the world
441090-001	Broadcom 802.11b/g WLAN module for use in most of the world
441090-002	Broadcom 802.11b/g WLAN module for use in the rest of the world
441424-001	200-GB (4200-rpm) hard drive
441540-001	100-GB (7200-rpm) hard drive
441541-001	Keyboard for use in the United States
441541-031	Keyboard for use in the United Kingdom
441541-041	Keyboard for use in Germany
441541-051	Keyboard for use in France
441541-061	Keyboard for use in Italy
441541-071	Keyboard for use in Spain
441541-111	Keyboard for use in Switzerland
441541-121	Keyboard for use in French Canada
441541-131	Keyboard for use in Portugal
441541-141	Keyboard for use in Turkey
441541-151	Keyboard for use in Greece
441541-161	Keyboard for use in Latin America
441075-002	Broadcom 4311AG 802.11a/b/g WLAN module for use in the rest of the world

Table 3-7
Spare Parts: Sequential Part Number Listing *(Continued)*

Spare Part Number	Description
441541-171	Keyboard for use in Saudi Arabia
441541-251	Keyboard for use in Russia
441541-281	Keyboard for use in Thailand
441541-291	Keyboard for use in Japan
441541-A41	Keyboard for use in Belgium
441541-B31	Keyboard for use in the Netherlands
441541-BB1	Keyboard for use in Israel
441541-DH1	Keyboard for use in Denmark, Finland, Norway, and Sweden
441620-001	G73 system board for use in models with Intel processors (includes 512 MB of video RAM) for use in Germany only
441762-001	Intel Core Duo T2350 (1.86-GHz) processor (includes thermal pad)
442919-001	Top cover (includes TouchPad and TouchPad cable) for model dv9200
442920-001	Switch cover (includes LED board and LED board cable) for model dv9200 for use in EMEA only
444002-001	System board for use in computer models with AMD processors
445170-001	Express card kit, HD-DVD (with driver CD)
445178-001	G73 system board for use in models with Intel processors (includes 256 MB of video RAM) for use in Germany only
446812-001	Intel Pentium Dual-Core (1.73-GHz) processor (includes thermal pad)
446814-001	Intel Core Duo T5300 (1.73-GHz) - dv9200 models processor (includes thermal pad)

Table 3-7

Spare Parts: Sequential Part Number Listing *(Continued)*

448003-001	2048-MB memory module, PC-5300, 667-MHz, 1-DIMM for use only with models using AMD processors
450370-001	Processor bracket 7.9, for use with the following processors: 434730-001 434731-001 436157-001 436900-001 446814-001
450371-001	Processor bracket 8.1, for use with the following processors: 430897-001, 446812-001, 441762-001
458116-001	120-GB (7200-rpm) hard drive for use only in models with AMD processors

4

Removal and Replacement Preliminaries

This chapter provides essential information for proper and safe removal and replacement service.

4.1 Tools Required

You will need the following tools to complete the removal and replacement procedures:

- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers
- Flat-bladed screwdriver

4.2 Service Considerations

The following sections include some of the considerations that you should keep in mind during disassembly and assembly procedures.

✎ As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic Parts

Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and Connectors

Ä **CAUTION:** When servicing the computer, ensure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Ensure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

4.3 Preventing Damage to Removable Drives

Removable drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a removable drive, or loss of information, observe the following precautions:

- Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
- Before removing a diskette drive or optical drive, ensure that a diskette or disc is not in the drive and ensure that the optical drive tray is closed.
- Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.
- Handle drives on surfaces covered with at least one inch of shock-proof foam.
- Avoid dropping drives from any height onto any surface.
- After removing a hard drive, CD-ROM drive, or a diskette drive, place it in a static-proof bag.
- Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.
- Avoid exposing a drive to temperature extremes or liquids.
- If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package, “FRAGILE: Handle With Care.”

4.4 Preventing Electrostatic Damage

Many electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs.

An electronic device exposed to electrostatic discharge might not be affected at all and can work perfectly throughout a normal cycle. Or the device might function normally for a while, then degrade in the internal layers, reducing its life expectancy.

4.5 Packaging and Transporting Precautions

Use the following grounding precautions when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe containers, such as tubes, bags, or boxes.
- Protect all electrostatic-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a sensitive component or assembly.
- Store reusable electrostatic-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Ensure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

4.6 Workstation Precautions

Use the following grounding precautions at workstations:

- Cover the workstation with approved static-shielding material (refer to Table 4-2, "Static-Shielding Materials").
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When using fixtures that must directly contact dissipative surfaces, only use fixtures made of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle electrostatic-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

4.7 Grounding Equipment and Methods

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

Other grounding equipment recommended for use in preventing electrostatic damage includes

- Antistatic tape.
- Antistatic smocks, aprons, and sleeve protectors.
- Conductive bins and other assembly or soldering aids.
- Nonconductive foam.
- Conductive tabletop workstations with ground cords of one megohm resistance.
- Static-dissipative tables or floor mats with hard ties to the ground.
- Field service kits.
- Static awareness labels.
- Material-handling packages.
- Nonconductive plastic bags, tubes, or boxes.
- Metal tote boxes.
- Electrostatic voltage levels and protective materials.

Table 4-1 shows how humidity affects the electrostatic voltage levels generated by different activities.

Table 4-1

Typical Electrostatic Voltage Levels

	Relative Humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

✎ A product can be degraded by as little as 700 V.

Table 4-2 lists the shielding protection provided by antistatic bags and floor mats.

Table 4-2

Static-Shielding Materials

Material	Use	Voltage Protection Level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5

Removal and Replacement Procedures

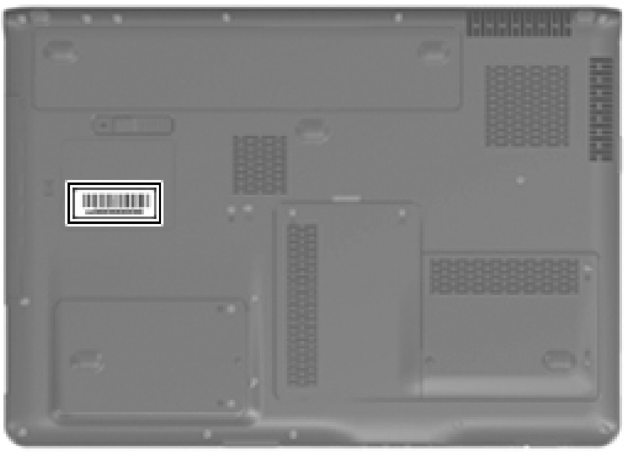
This chapter provides removal and replacement procedures.

There are as many as 109 screws, in 11 different sizes, that must be removed, replaced, or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.

Refer to Appendix A, “Screw Listing,” for detailed information on screw sizes, locations, and usage.

5.1 Serial Number

Report the computer serial number to HP when requesting information or ordering spare parts. The serial number is located on the bottom of the computer.



Serial Number Location

5.2 Disassembly Sequence Chart

Use the chart below to determine the section number to be referenced when removing computer components.

Disassembly Sequence Chart

Section	Description	# of Screws Removed
5.3	Preparing the Computer For Disassembly	
	Battery	0

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.4	Hard Drive	2 loosened to remove each hard drive cover 4 removed to disassemble each hard drive
5.5	Computer Feet	0
5.6	Memory Module	2 loosened to remove the memory module compartment cover
5.7	RTC Battery	0
5.8	Mini Card Module	2
	△ To prevent an unresponsive system and the display of a warning message, install only a Mini Card device authorized for use in your computer by the governmental agency that regulates wireless devices in your country or region. If you install a device and then receive a warning message, remove the device to restore computer functionality. Then contact technical support by selecting **Start** > **Help and Support** > **Contact support**.	
5.9	Optical Drive	1 to remove the optical drive 2 to remove the optical drive bracket
5.10	Switch Cover	6
5.11	Keyboard	4
5.12	Speaker Assembly	2
5.13	Power Button Board	1

Disassembly Sequence Chart *(Continued)*

Section	Description	# of Screws Removed
5.14	Display Assembly	6
	Display bezel	5
	Camera module	0
	Display inverter	0
	Display panel	6
	Display hinges	4
	Display hinge covers	0
	Wireless antenna transceivers	4
	Microphones	0
	Camera cable	0
5.15	Top Cover	18
5.16	Wireless Switch Board	2
5.17	Audio Board	1
5.18	Bluetooth Module	2
5.19	USB/Magnetic Board	1
5.20	ExpressCard Assembly	4
5.21	Top Cover Support Trim	5
5.22	Display Lid Switch Module	0
5.23	Power Connector Assembly	2 to remove the power connector assembly bracket 1 to remove the USB board 1 to remove the power connector assembly
5.24	System Board	7
5.25	Fan/Heat Sink Assembly	7 loosened
5.26	Processor	1 loosened

5.3 Preparing the Computer For Disassembly

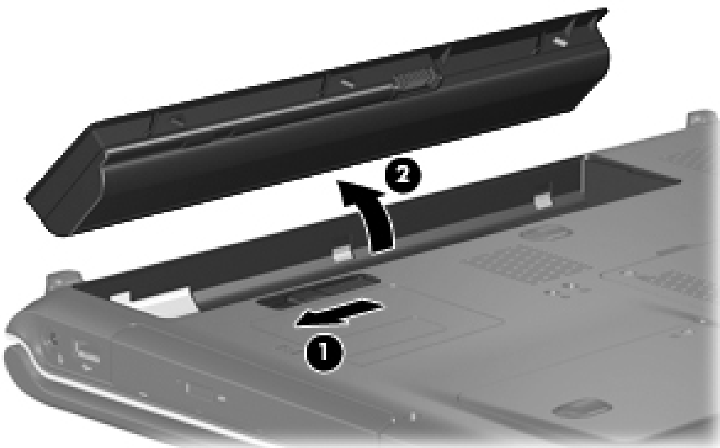
Before you begin any removal or installation procedures:

1. Shut down the computer. If you are unsure whether the computer is off or in hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power cord.

Battery Spare Part Number Information	
8-cell, 4.4-Ahr battery for use only with computer models using AMD processors	432974-001
8-cell, 2.2-Ahr battery for use with all computer models	434674-001

4. Remove the battery by following these steps:
   a. Turn the computer upside down with the front panel toward you.

b. Slide and hold the battery release latch ❶ to the left. (The front edge of the battery disengages from the computer.)
c. Lift the front edge of the battery ❷ and swing it back.
d. Remove the battery.



Removing the Battery

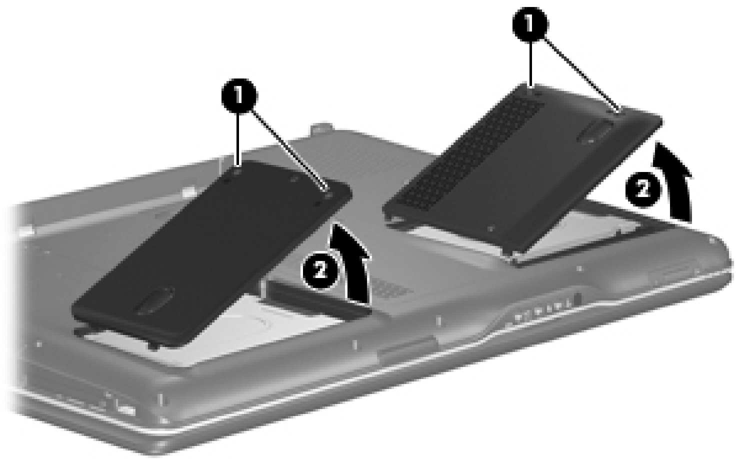
Reverse the above procedure to install the battery.

5.4 Hard Drive

Hard Drive Spare Part Number Information	
Hard drives (include bracket and connector)	
For use only with computer models using Intel processors:	
100-GB (7200-rpm)	434662-001
100-GB (5400-rpm)	432997-001
For use with all computer models:	
200-GB (4200-rpm)	441424-001
160-GB (5400-rpm)	438485-001
120-GB (5400-rpm)	432998-001
100-GB (7200-rpm)	441540-001
80-GB (5400-rpm)	432996-001
For use only with computer models using AMD processors:	
120-GB (7200-rpm)	458116-001
Hard Drive Bracket Kit	434106-001

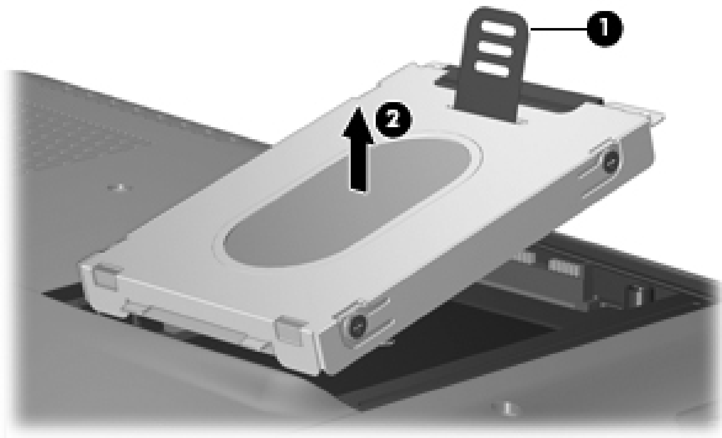
1. Prepare the computer for disassembly (refer to Section 5.3).
2. Loosen the two captive Phillips PM2.0×5.0 screws ❶ that secure each hard drive cover to the computer.
3. Lift the right side of the cover ❷ and swing it to the left.
4. Remove the hard drive cover.

✎ The hard drive covers are included in the Plastics Kit, spare part number 432981-001.



Removing the Hard Drive Covers

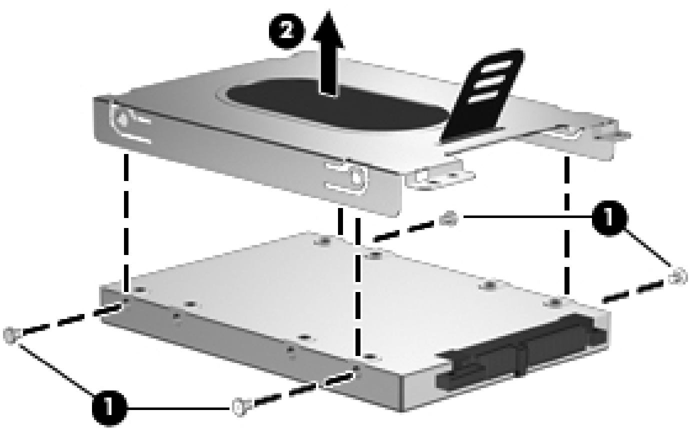
5. Use the mylar tab ❶ to lift the hard drive ❷ until it disconnects from the computer.
6. Remove the hard drive from the hard drive bay.



Removing the Hard Drive

7. Remove the four Phillips PM3.0×3.0 screws ❶ that secure the hard drive bracket to the hard drive.
8. Lift the bracket ❷ straight up to remove it from the hard drive.

✎ The hard drive bracket and the screws used to secure the bracket to the hard drive are included in the Hard Drive Bracket Kit, spare part number 434106-001.

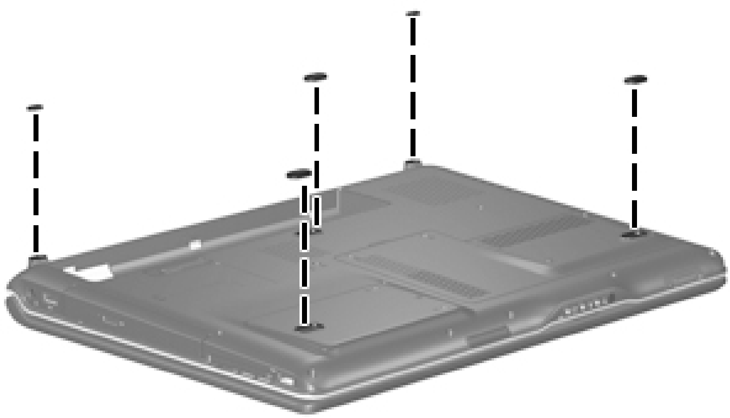


Removing the Hard Drive Bracket

Reverse the above procedure to install and reassemble the hard drives.

5.5 Computer Feet

The computer feet are adhesive-backed rubber pads. The feet are included in the Rubber Feet Kit, spare part number 432982-001. The feet attach to the base enclosure in the locations illustrated below.



Computer Feet Locations

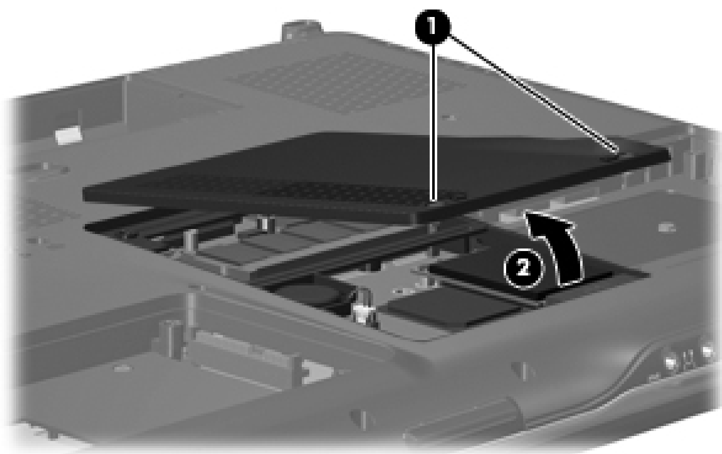
5.6 Memory Module

Memory Module Spare Part Number Information	
Memory modules, PC-5300, 667-MHz, 1-DIMM	
For use only with models using Intel processors:	
1024-MB	434742-001
512-MB	434741-001
For use only with models using AMD processors:	
2048-MB	448003-001
1024-MB	432970-001
512-MB	432969-001

1. Prepare the computer for disassembly (refer to Section 5.3).

2. Loosen the two captive Phillips PM2.0×5.0 screws ❶ that secure the memory module compartment cover to the computer.
3. Lift the front of the memory module compartment cover ❷, and then swing it back.
4. Remove the memory module compartment cover.

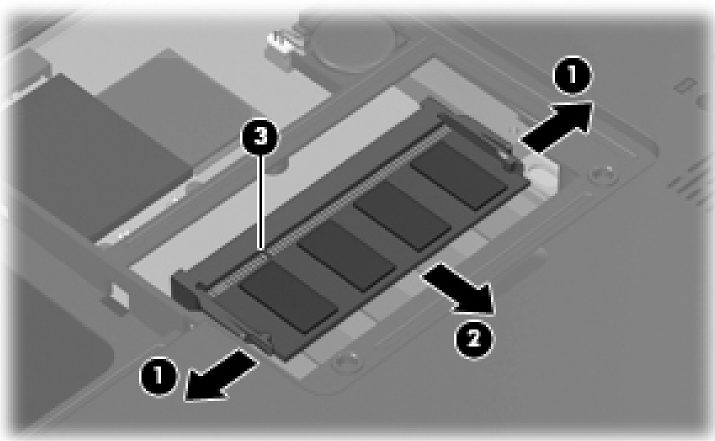
✎ The memory module compartment cover is included in the Plastics Kit, spare part number 432981-001.



Removing the Memory Module Compartment Cover

5. Spread the retaining tabs ❶ on each side of the memory module socket to release the memory module. (The edge of the module opposite the socket rises away from the computer.)
6. Slide the module ❷ away from the socket at an angle.

✎ Memory modules are designed with a notch ❸ to prevent incorrect installation into the memory module socket.



Removing a Memory Module

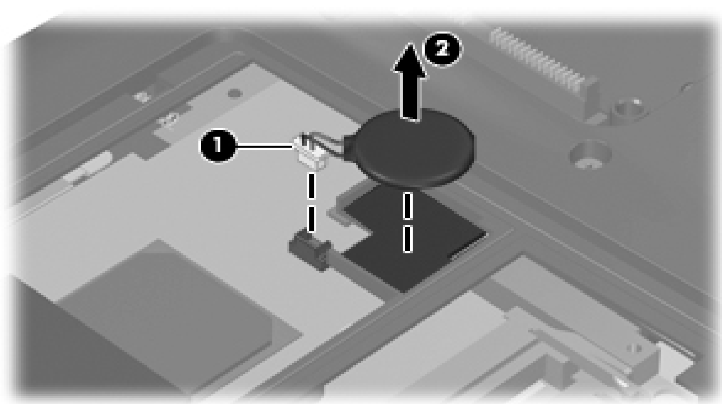
Reverse the above procedure to install a memory module.

5.7 RTC Battery

RTC Battery Spare Part Number Information	
RTC battery (includes 2-sided tape)	431436-001

1. Prepare the computer for disassembly (refer to Section 5.3).
2. Remove the memory module compartment cover (Section 5.6).
3. Disconnect the RTC battery cable ❶ from the system board.
4. Remove the RTC battery ❷.

✎ The RTC battery is secured to the computer by 2-sided tape. All replacement RTC battery spare part kits include 2-sided tape.



Removing the RTC Battery

Reverse the above procedure to install the RTC battery.

5.8 Mini Card Module

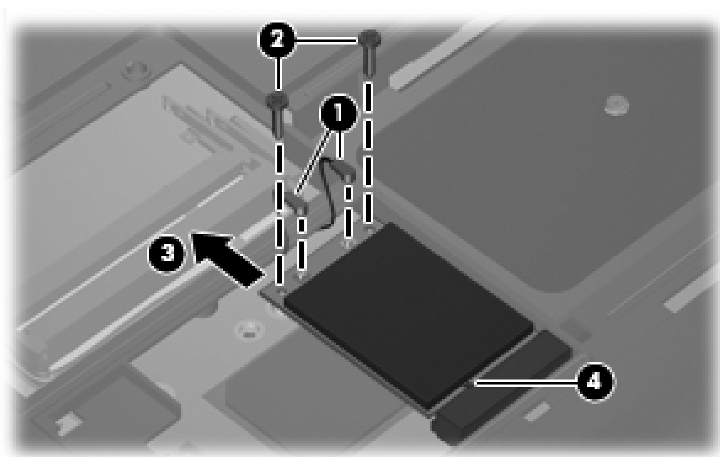
Mini Card Module Spare Part Number Information			
For use only with models using Intel processors:			
802.11a/b/g WLAN Mini Card module for use in the MOW1 countries and regions listed below:			407674-001
Antigua & Barbuda	Canada	Panama	Paraguay
Argentina	Chile	India	Saudi Arabia
Australia	Dominican Republic	Indonesia	Taiwan
Bahamas	Guam	Malaysia	The United States
Barbados	Guatemala	Mexico	Vietnam
		New Zealand	
802.11a/b/g WLAN Mini Card module for use in the MOW2 countries and regions listed below:			407674-002
Aruba	Egypt	The Philippines	The
Austria	El Salvador	Poland	Netherlands
Azerbaijan	Estonia	Portugal	Norway
Bahrain	Finland	Romania	Oman
Belgium	France	Russia	Slovenia
Bermuda	Georgia	Serbia and	South Africa
Bulgaria	Germany	Montenegro	Spain
Cayman Islands	Greece	Singapore	Sri Lanka
Columbia	Hungary	Slovakia	Sweden
Croatia	Iceland	Liechtenstein	Switzerland
Cyprus	Ireland	Lithuania	Turkey
The Czech Republic	Italy	Luxembourg	The United
	Latvia	Malta	Kingdom
Denmark	Lebanon	Monaco	Uzbekistan

Mini Card Module Spare Part Number Information *(Continued)*			
802.11a/b/g WLAN Mini Card module for use in the ROW countries and regions listed below:			407674-003
China Ecuador Haiti	Honduras Pakistan Peru	Qatar South Korea	Uruguay Venezuela
802.11b/g WLAN Mini Card module for use in Costa Rica, Israel, Kuwait, Thailand, UAE, Ukraine.			407674-004
802.11a/b/g WLAN Mini Card module for use only in Japan			407674-291
For use only with models using AMD processors:			
Broadcom 802.11b/g WLAN module for use in most of the world			441090-001
Broadcom 802.11b/g WLAN module for use the rest of the world			441090-002
Broadcom 4311AG 802.11a/b/g WLAN module for use in most of the world			441075-001
Broadcom 4311AG 802.11a/b/g WLAN module for use in the rest of the world			441075-002
802.11a/b/g EWC WLAN module for use in most of the world			434661-001
802.11a/b/g EWC WLAN module for use in most of the world			434661-002

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the memory module compartment cover (Section 5.6).

3. Make note of which wireless antenna cable is attached to which antenna clip on the Mini Card module before disconnecting the cables. Then disconnect the cables ❶ from the module.
4. Remove the two Phillips PM2.0×11.0 screws ❷ that secure the Mini Card module to the computer. (The edge of the module opposite the socket rises away from the computer).
5. Remove the module ❸ by pulling it away from the socket at an angle.

✎ Mini Card modules are designed with a notch ❹ to prevent incorrect installation into the Mini Card module socket.



Removing a Mini Card Module

Reverse the above procedure to install a Mini Card module.

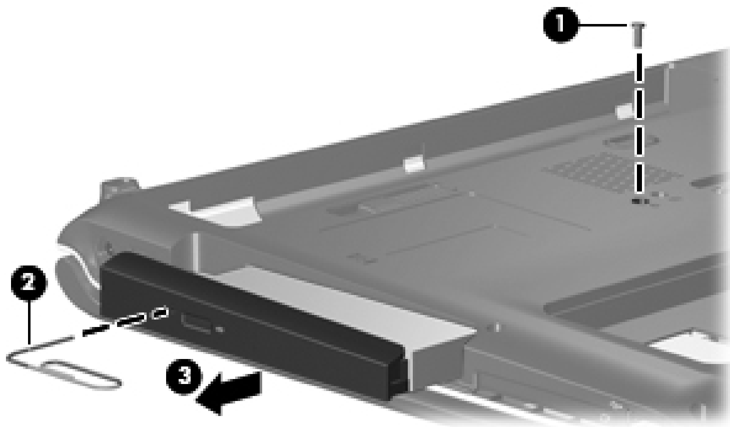
5.9 Optical Drive

Optical Drive Spare Part Number Information

DVD±RW/R and CD-RW Double-Layer Combo Drive with LightScribe	432973-001
DVD±RW/R and CD-RW Double-Layer Combo Drive	432972-001
DVD/CD-RW Combo Drive	434673-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the Phillips PM2.5×8.0 screw ❶ that secures the optical drive to the computer.
3. Insert a thin tool, such as a paper clip ❷, into the media tray release hole. (The optical drive media tray releases from the optical drive.)
4. Use the media tray frame to slide the optical drive ❸ out of the computer.

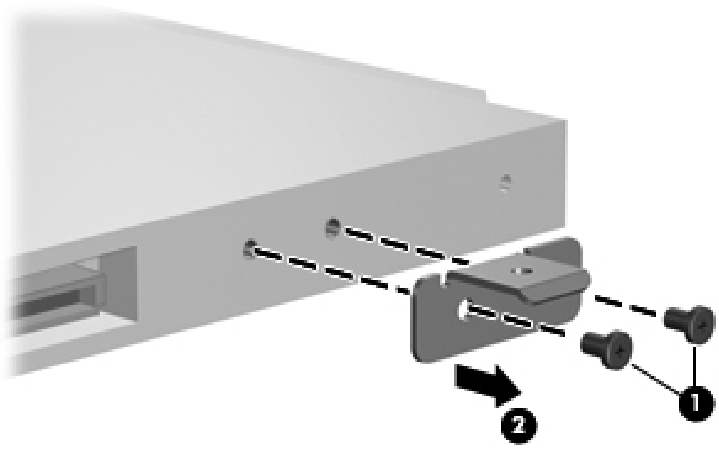
5. Remove the optical drive.



Removing the Optical Drive

6. Position the optical drive with the optical drive bracket toward you.
7. Remove the two Phillips PM2.0×3.0 screws ❶ that secure the optical drive bracket to the optical drive.

8. Remove the optical drive bracket ❷.



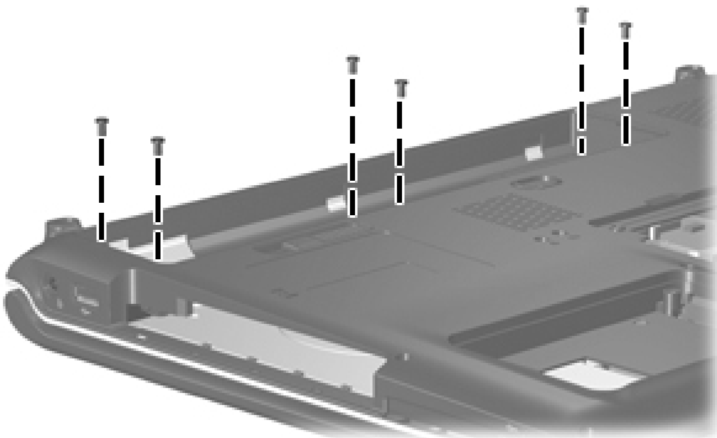
Removing the Optical Drive Bracket

Reverse the above procedure to reassemble and install the optical drive.

5.10 Switch Cover

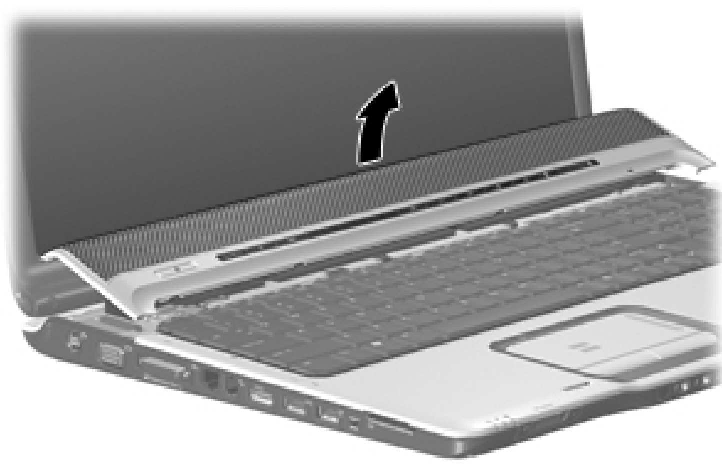
Switch Cover Spare Part Number Information	
Switch cover (includes LED board and LED board cable), for model dv9000	432979-001
Switch cover (includes LED board and LED board cable), for model dv9200	438319-001
Switch cover (includes LED board and LED board cable), for model dv9200 for EMEA only	442920-001

1. Prepare the computer for disassembly (Section 5.3).
2. Close the computer.
3. Turn the computer upside down with the front panel toward you.
4. Remove the six Phillips PM2.0×5.0 screws that secure the switch cover to the computer.



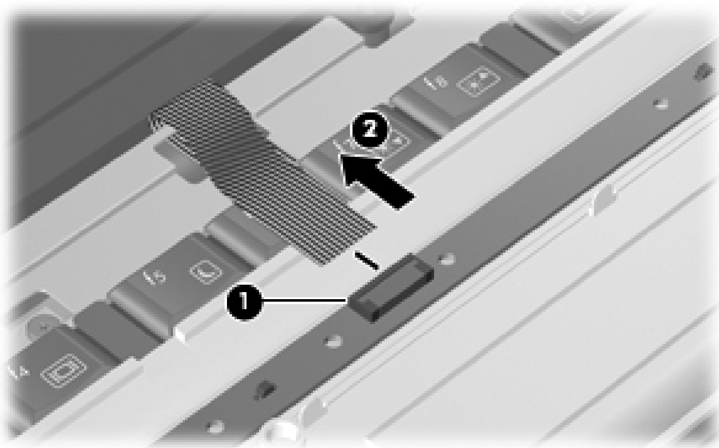
Removing the Switch Cover Screws

5. Turn the computer display-side up with the front toward you.
6. Open the computer as far as possible.
7. Lift the rear edge of the switch cover and swing it forward until it rests on the keyboard.



Releasing the Switch Cover

8. Release the zero insertion force (ZIF) connector ❶ to which the LED board cable is connected and disconnect the cable ❷ from the LED board.
9. Remove the switch cover.



Disconnecting the LED Board Cable

Reverse the above procedure to install the switch cover.

5.11 Keyboard

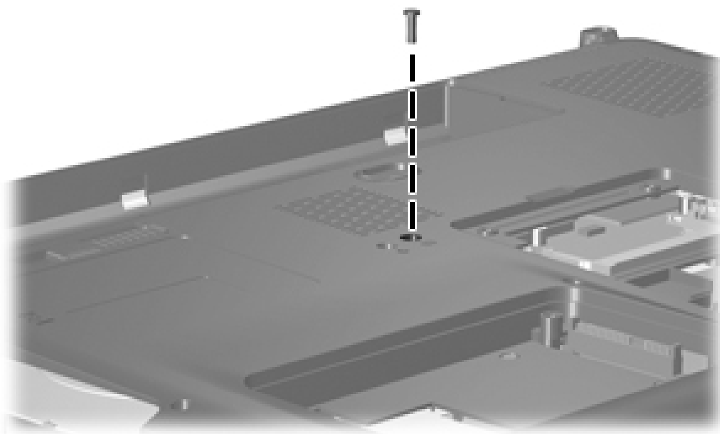
Keyboard Spare Part Number Information

For use in the following countries and regions:

Belgium	441541-A41	Latin America	441541-161
Denmark, Finland, Norway, and Sweden	441541-DH1	Netherlands	441541-B31
		Portugal	441541-131
		Russia	441541-251
France	441541-051	Saudi Arabia	441541-171
French Canada	441541-121	Spain	441541-071
Germany	441541-041	Switzerland	441541-111
Greece	441541-151	Thailand	441541-281
Israel	441541-BB1	Turkey	441541-141
Italy	441541-061	United Kingdom	441541-031
Japan	441541-291	United States	441541-001

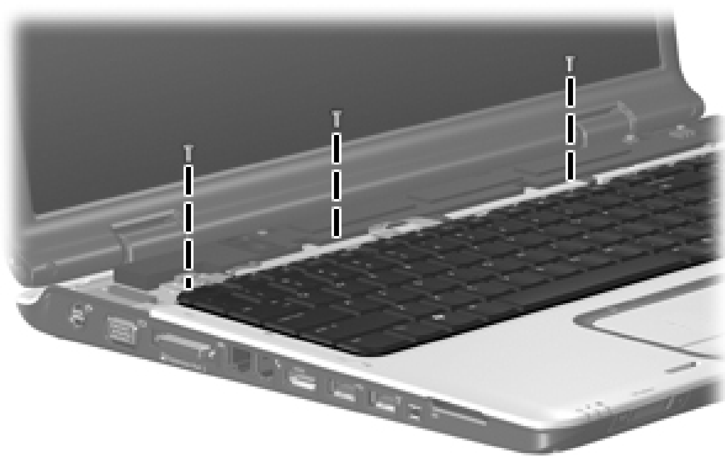
1. Prepare the computer for disassembly (Section 5.3).
2. Remove the switch cover (Section 5.10).

3. Remove the Phillips PM2.5×7.0 screw that secures the keyboard to the computer.



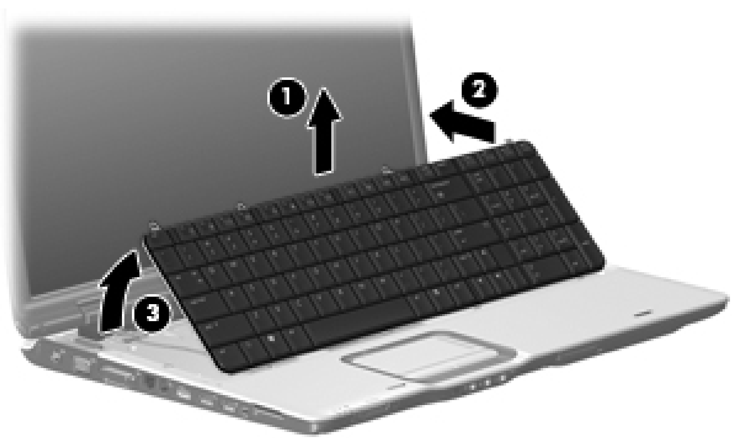
Removing the Keyboard Screw, Part 1

4. Turn the computer display-side up with the front panel toward you.
5. Open the computer as far as possible.
6. Remove the three silver Phillips PM2.5×5.0 screws that secure the keyboard to the computer.



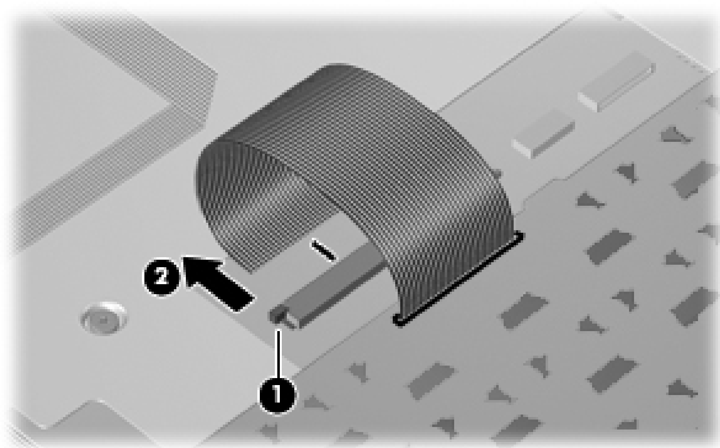
Removing the Keyboard Screws, Part 2

7. Lift the rear edge of the keyboard ❶ until it rests at an angle.
8. Slide the keyboard ❷ back to disengage the tabs on the front edge of the keyboard from the top cover.
9. Swing the keyboard ❸ forward until it rests on the palm rest.



Releasing the Keyboard

10. Release the ZIF connector ❶ to which the keyboard cable is connected and disconnect the keyboard cable ❷ from the system board.



Disconnecting the Keyboard Cable

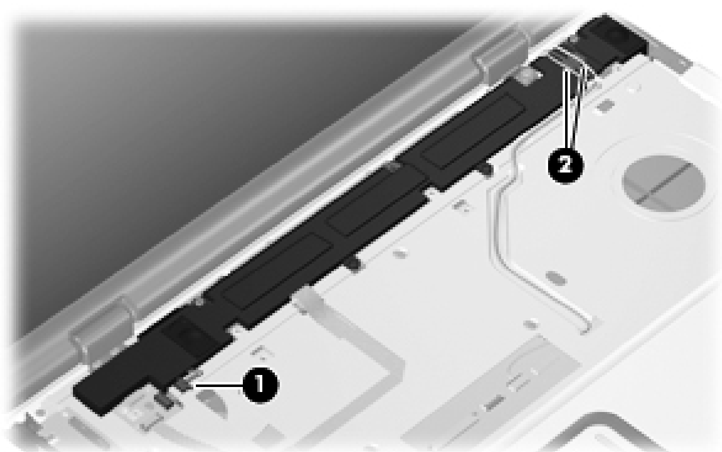
11. Remove the keyboard.

Reverse the above procedure to install the keyboard.

5.12 Speaker Assembly

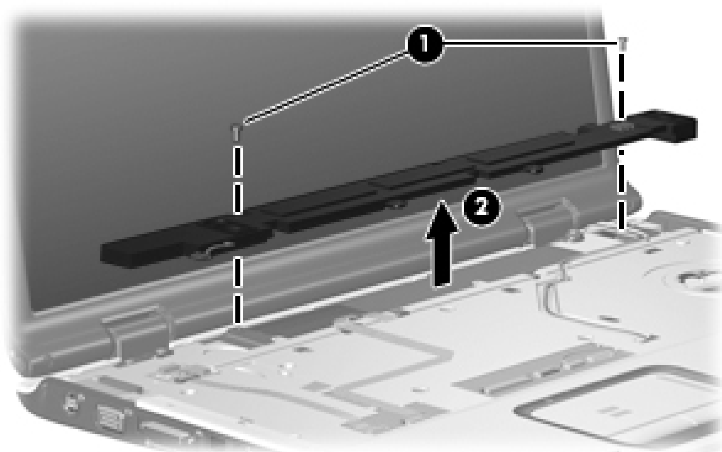
Speaker Assembly Spare Part Number Information	
Speaker assembly	432994-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the switch cover (Section 5.10).
3. Remove the keyboard (Section 5.11).
4. Disconnect the speaker assembly cable ❶ from the power button board.
5. Remove the the wireless antenna cables and microphone cable from the clips ❷ in the speaker assembly.



Releasing the Speaker Assembly

6. Remove the two black Phillips PM2.5×5.0 screws ❶ that secure the speaker assembly to the computer.
7. Remove the speaker assembly ❷.



Removing the Speaker Assembly

Reverse the above procedure to install the speaker assembly.

5.13 Power Button Board

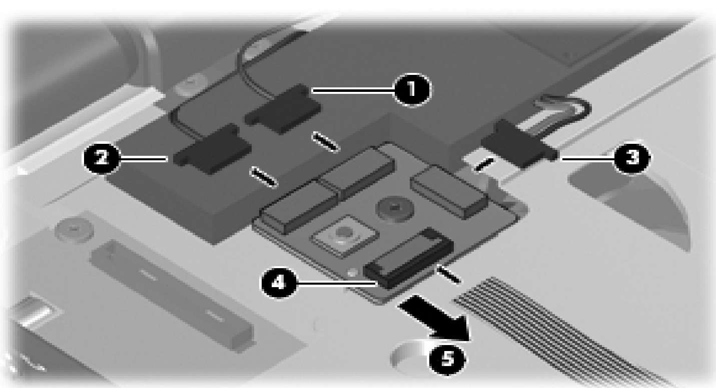
Power Button Board Spare Part Number Information	
Power button board (includes power button board cable)	432987-001

1. Prepare the computer for disassembly (Section 5.3).
2. Remove the switch cover (Section 5.10).
3. Remove the keyboard (Section 5.11).
4. Disconnect the following cables from the power button board:

   ❶ Display lid switch module cable

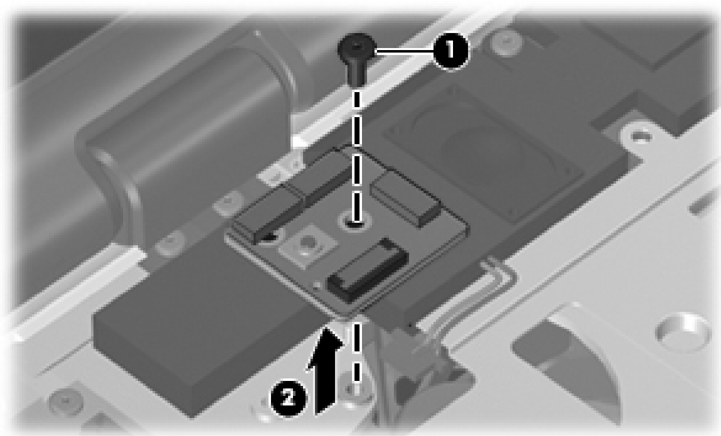
   ❷ Microphone cable

   ❸ Speaker assembly cable
5. Release the ZIF connector ❹ to which the power button board cable is connected and disconnect the cable ❺.



Disconnecting the Power Button Board Cables

6. Remove the silver Phillips PM2.5×5.0 screw ❶ that secures the power button board to the computer.
7. Remove the power button board ❷.



Removing the Power Button Board

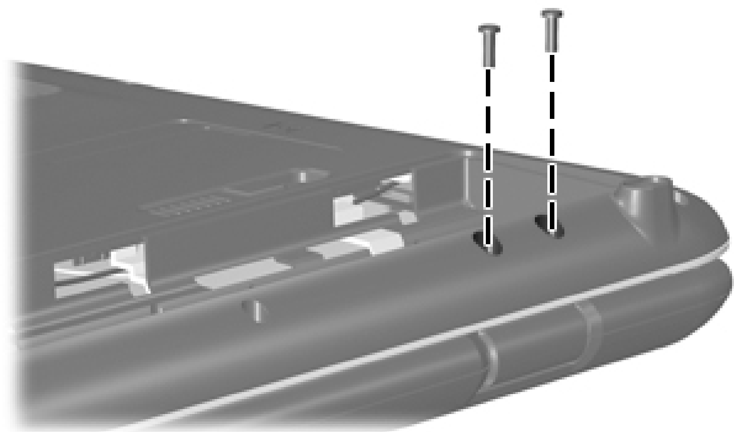
Reverse the above procedure to install the power button board.

5.14 Display Assembly

Display Assembly Spare Part Number Information	
For use with full-featured computer models (includes camera, camera cable, and microphones)	
17.0-inch, SXGA+, TFT Single Lamp with BrightView	432947-001
17.0-inch, WXGA+, TFT Single Lamp with BrightView	432946-001
17.0-inch, WXGA+, TFT Dual Lamp with BrightView	432948-001
For use with de-featured computer models (includes microphones)	
17.0-inch, SXGA+, TFT Single Lamp with BrightView	432950-001
17.0-inch, WXGA+, TFT Single Lamp with BrightView	432949-001
17.0-inch, WXGA+, TFT Dual Lamp with BrightView	432951-001

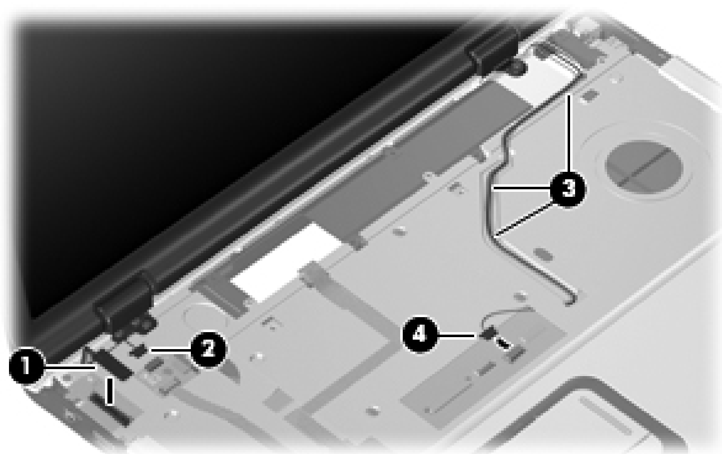
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Memory module compartment cover (Section 5.8)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)

2. Close the computer.
3. Turn the computer upside down with the rear panel toward you.
4. Remove the two Phillips PM2.5×8.0 screws that secure the display assembly to the computer.



Removing the Display Assembly Screws

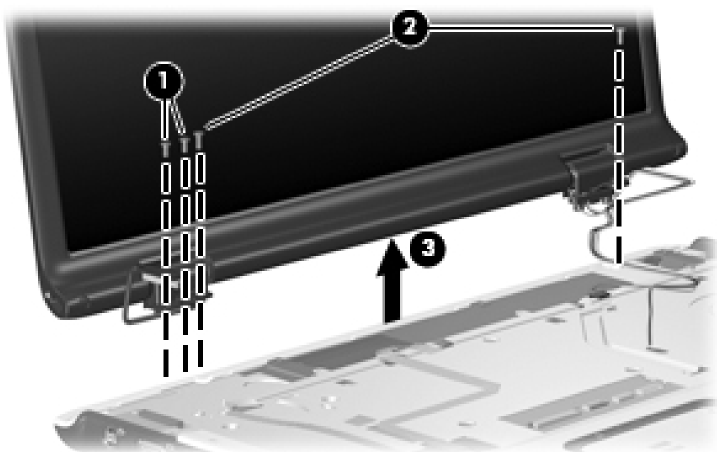
5. Turn the computer display-side up with the front toward you.
6. Open the computer to an upright position.
7. Disconnect the display cable ❶ from the system board and the microphone cable ❷ from the power button board.
8. Remove the wireless antenna cables and the camera cable from the clips ❸ in the top cover.
9. Disconnect the camera cable ❹ from the system board.



Disconnecting the Display Cables

CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

10. Remove the two Phillips PM2.5×8.0 screws ❶ and the two silver Phillips PM2.5×5.0 screws ❷ that secure the display assembly to the computer.
11. Remove the display assembly ❸.



Removing the Display Assembly

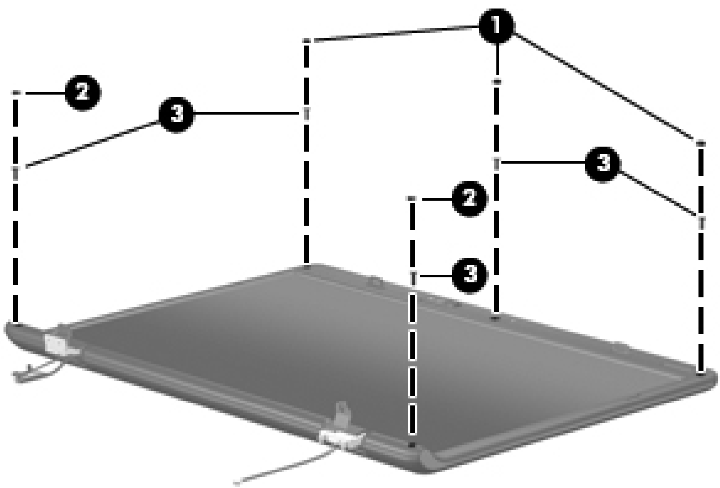
12. Remove the following:

    ❶ Three rubber screw covers on the display bezel top edge

    ❷ Two rubber screw covers on the display bezel bottom edge

    ❸ Five Phillips PM2.5×8.0 screws

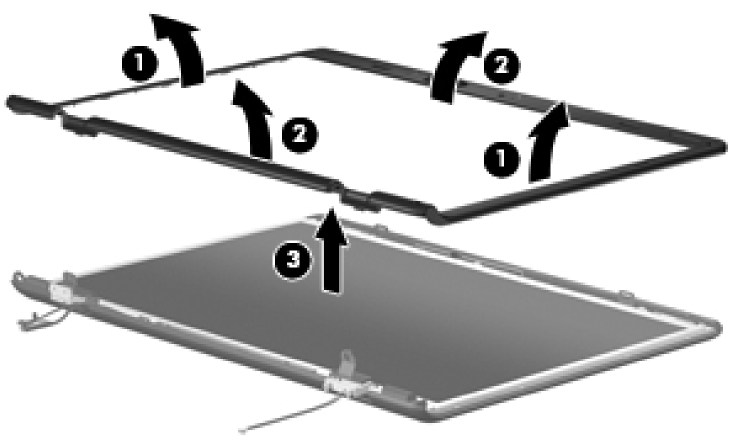
✎ The display rubber screw covers are included in the Display Screw Kit, spare part number 432967-001.



Removing the Display Bezel Screws

Display Assembly Subcomponents Spare Part Number Information	
Display bezels	
For use with Dual Lamp display panels with camera	432956-001
For use with Dual Lamp display panels without camera	436068-001
For use with Single Lamp display panels with camera	432955-001
For use with Single Lamp display panels without camera	436067-001

13. Flex the inside edges of the left and right sides ❶ and the top and bottom sides ❷ of the display bezel until the bezel disengages from the display enclosure.
14. Remove the display bezel ❸.

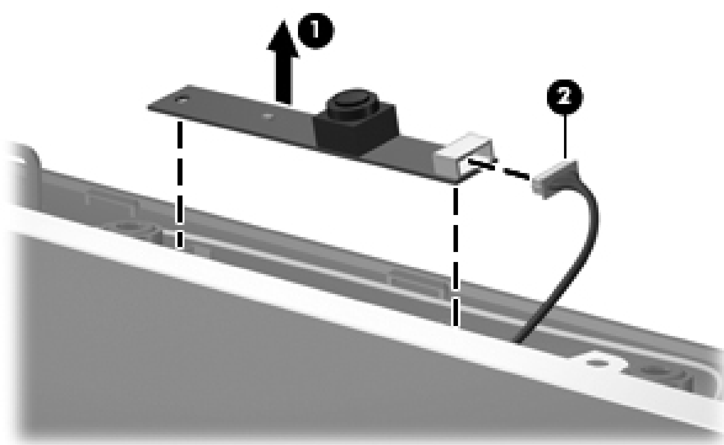


Removing the Display Bezel

Display Assembly Subcomponents Spare Part Number Information	
Camera module	432960-001

✎ The camera module is secured to the display enclosure by a 2-sided adhesive pad. Apply removal force to the middle of the module to remove it.

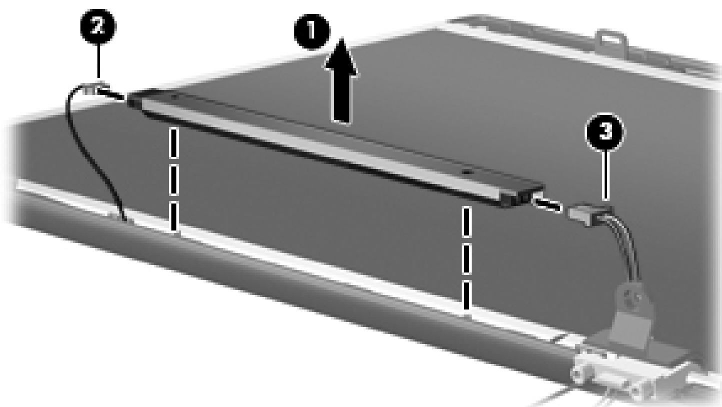
15. Remove the camera module ❶ from the display enclosure.
16. Disconnect the camera cable ❷ from the camera module.



Removing the Camera Module

Display Assembly Subcomponents Spare Part Number Information	
Display inverters	
For use with Dual Lamp display panels	432959-001
For use with Single Lamp display panels	431391-001

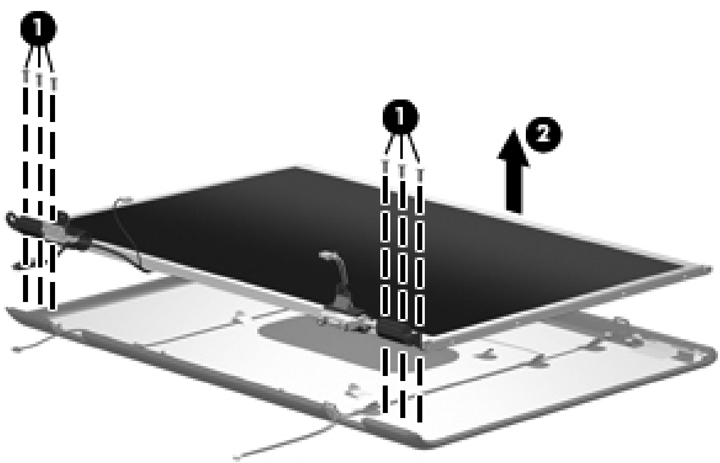
17. Remove the inverter ❶ from the display enclosure.
18. Disconnect the display cable ❷ and the backlight cable ❸ from the display inverter.



Removing the Display Inverter

Display Assembly Subcomponents Spare Part Number Information	
Display panels	
17.0-inch, WXGA+, TFT Dual Lamp display panel with BrightView	432954-001
17.0-inch, SXGA+, TFT Single Lamp display panel with BrightView	432953-001
17.0-inch, WXGA+, TFT Single Lamp display panel with BrightView	432952-001

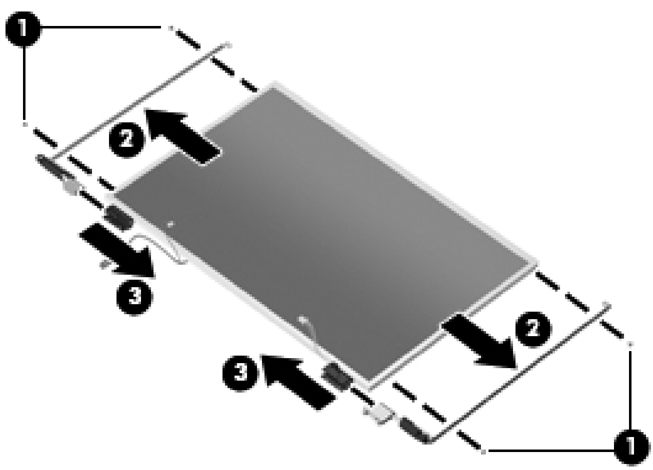
19. Remove the six Phillips PM2.5×8.0 screws ❶ that secure the display panel to the display enclosure.
20. Remove the display panel ❷.



Removing the Display Panel

Display Assembly Subcomponents Spare Part Number Information	
Display Hinge Kits	
For use with Dual Lamp display panels	432964-001
For use with Single Lamp display panels	432963-001
Display hinge covers	432965-001

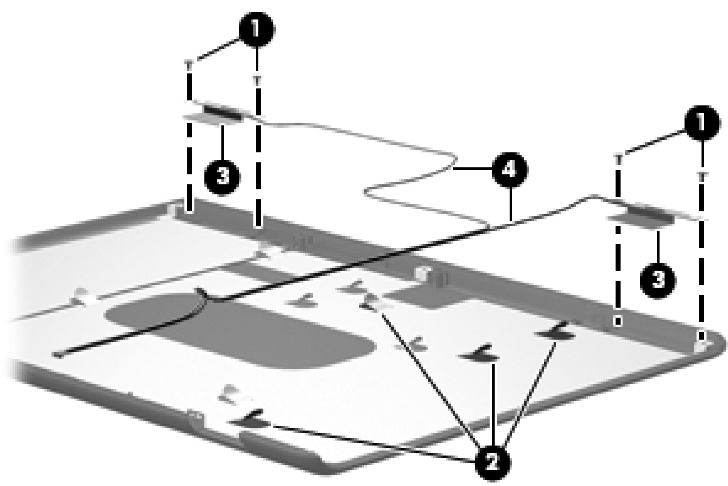
21. Remove the two Phillips PM2.0×3.0 screws ❶ that secure each display hinge to the display enclosure.
22. Remove the display hinges ❷.
23. Slide the left and right display hinge covers ❸ off of the display hinges.



Removing the Display Hinges

Display Assembly Subcomponents Spare Part Number Information	
Wireless antenna transceivers and cables	432966-001

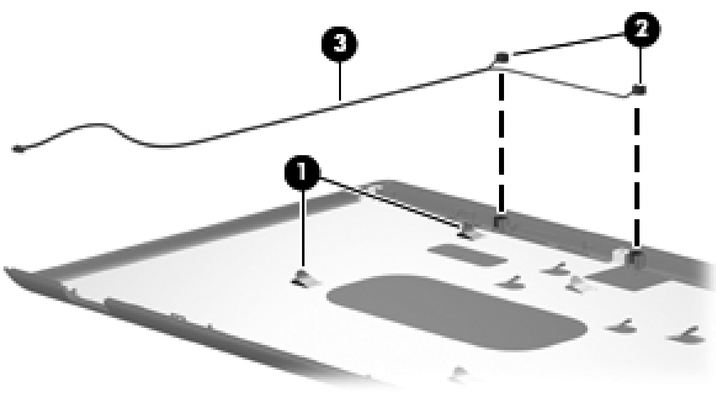
24. If it is necessary to replace the wireless antenna transceivers and cables, remove the two Phillips PM2.0×4.0 screws ❶ that secure each transceiver to the display enclosure.
25. Remove the wireless antenna cables from the clips ❷ built into the display enclosure.
26. Detach the wireless antenna transceivers ❸ from the display enclosure.
27. Remove the wireless antenna cables ❹.



Removing the Wireless Antenna Transceivers and Cables

Display Assembly Subcomponents Spare Part Number Information	
Microphones	432961-001

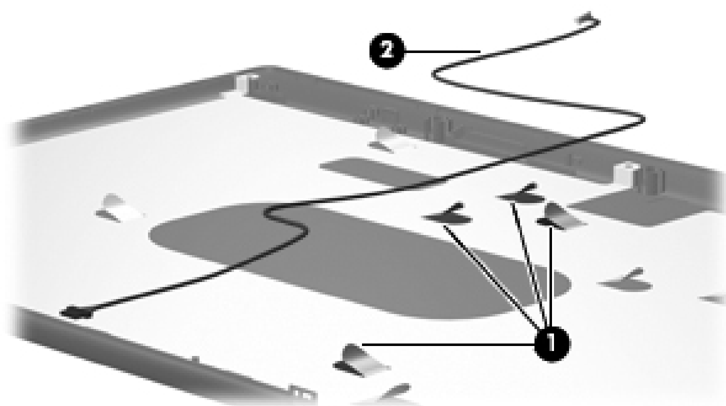
28. If it is necessary to replace the microphones and cables, release the retention tabs ❶ built into the display enclosure that secure the microphone cables to the display enclosure.
29. Remove the microphone receivers ❷ from the clips in the display enclosure.
30. Remove the microphone cables ❸ from the display enclosure.



Removing the Microphones

Display Assembly Subcomponents Spare Part Number Information	
Display Cable Kit (includes camera cable)	432962-001

31. If it is necessary to replace the camera cable, release the retention tabs ❶ built into the display enclosure that secure the camera cable to the display enclosure.
32. Remove the camera cable ❷ from the display enclosure.



Removing the Camera Cable

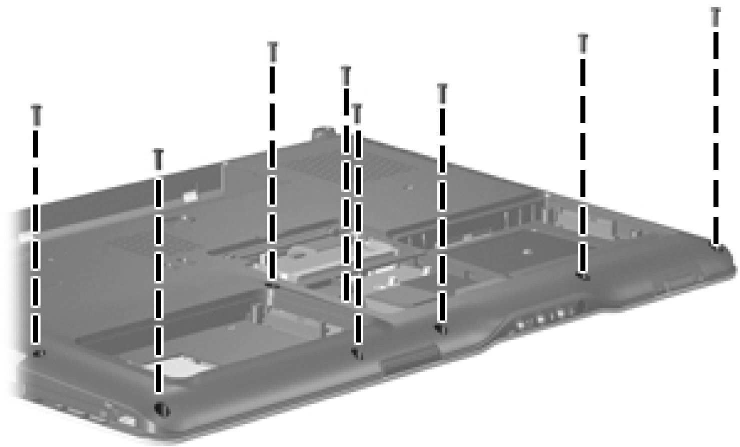
Reverse the above procedure to reassemble and install the display assembly

5.15 Top Cover

Top Cover Spare Part Number Information	
Top cover (includes TouchPad and TouchPad cable) for use with model dv9000	432977-001
Top cover (includes TouchPad and TouchPad cable) for use with dv9200	442919-001

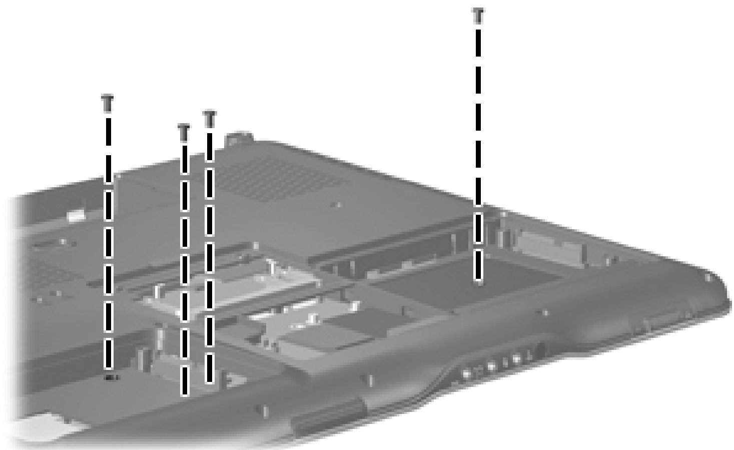
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)

2. Turn the computer upside down with the front toward you.
3. Remove the eight Phillips PM2.5×8.0 screws that secure the top cover to the computer.



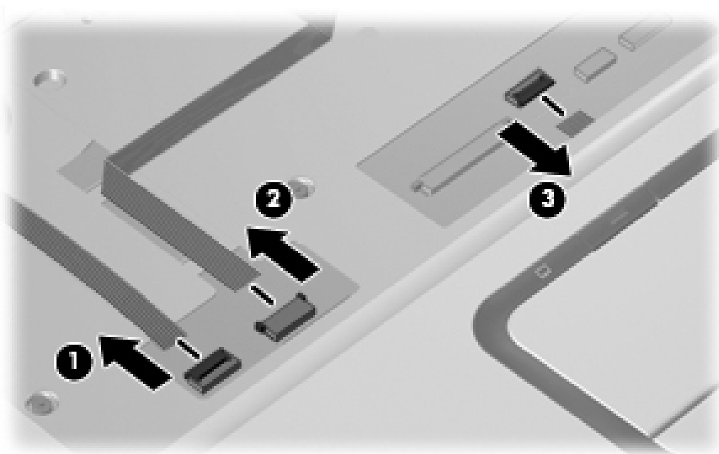
Removing the Top Cover Screws, Part 1

4. Remove the four silver Phillips PM2.5×5.0 screws that secure the top cover to the computer.



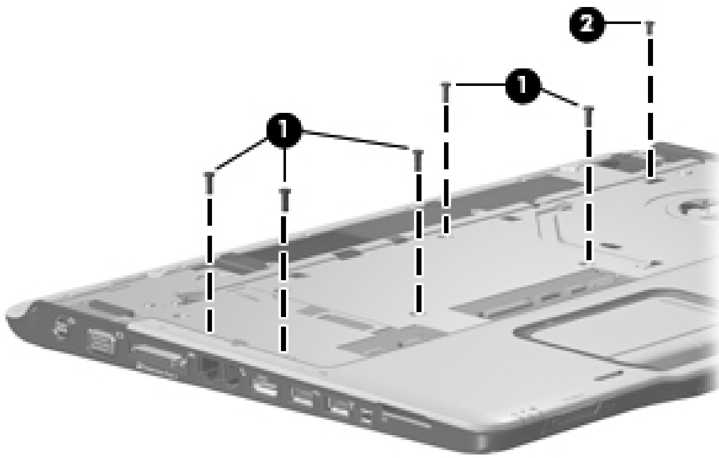
Removing the Top Cover Screws, Part 2

5. Turn the computer right-side up with the front toward you.
6. Disconnect the power button board cable ❶ and the LED board cable ❷ from the low insertion force (LIF) connectors to which they are connected.
7. Release the ZIF connector to which the TouchPad cable is attached and disconnect the TouchPad cable ❸.



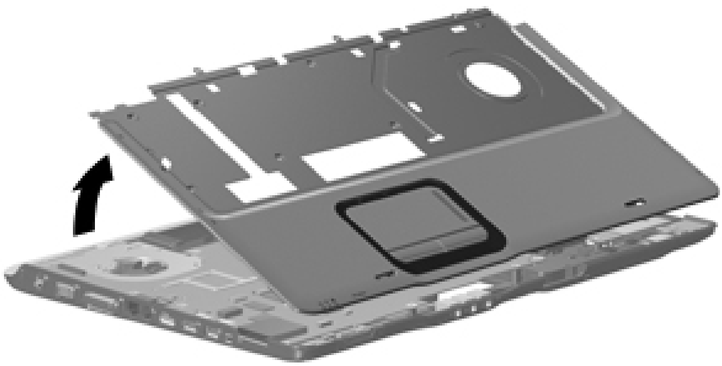
Disconnecting the Top Cover Cables

8. Remove the five Phillips PM2.5×8.0 screws ❶ and the silver Phillips PM2.5×5.0 screw ❷ that secures the top cover to the computer.



Removing the Top Cover Screws, Part 3

9. Lift the rear edge of the top cover until it disengages from the computer, and remove the top cover.



Removing the Top Cover

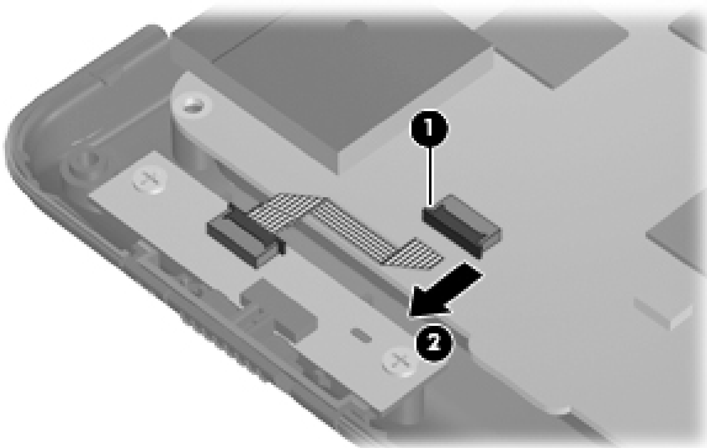
Reverse the above procedure to install the top cover.

5.16 Wireless Switch Board

Wireless Switch Board Spare Part Number Information	
Wireless switch board	432991-001

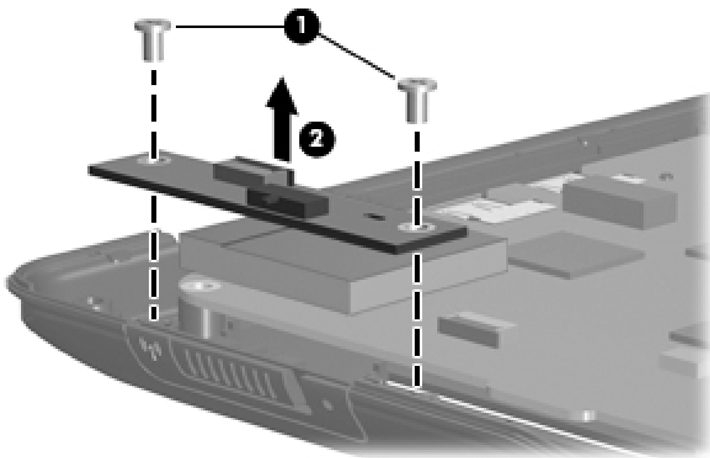
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

2. Release the ZIF connector ❶ to which the wireless switch board cable is connected and disconnect the wireless switch board cable ❷ from the system board.



Removing the Wireless Switch Board

3. Remove the two silver Phillips PM2.5×5.0 screws ❶ that secure the wireless switch board to the base enclosure.
4. Remove the wireless switch board ❷.



Removing the Wireless Switch Board

Reverse the above procedure to install the wireless switch board.

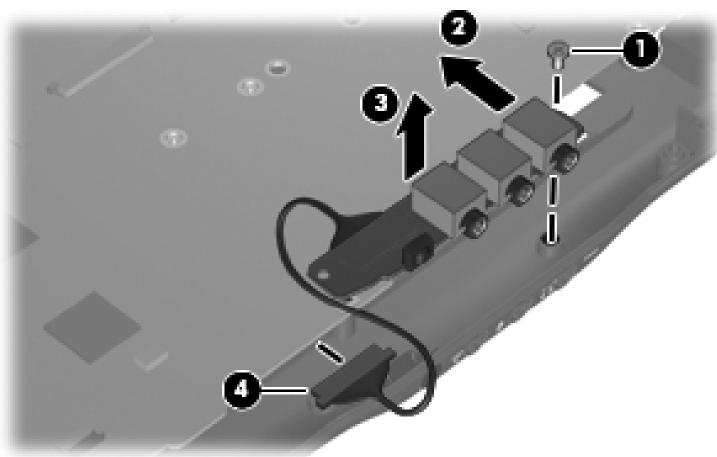
5.17 Audio Board

Audio Board Spare Part Number Information	
Audio board (includes audio board cable and infrared lens) for use with dv9000	432986-001
Audio board (includes audio board cable and infrared lens) for use with dv9200	438369-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

2. Remove the silver Phillips PM2.5×5.0 screw ❶ that secures the audio board to the computer.
3. Slide the audio board ❷ back to disengage the audio connectors from the base enclosure.
4. Remove the audio board ❸.
5. Disconnect the audio board cable ❹ from the system board.

✎ The audio board cable is included with the audio board spare part kit and is also included in the Cable Kit, spare part number 434677-001.



Removing the Audio Board

Reverse the above procedure to install the audio board.

5.18 Bluetooth Module

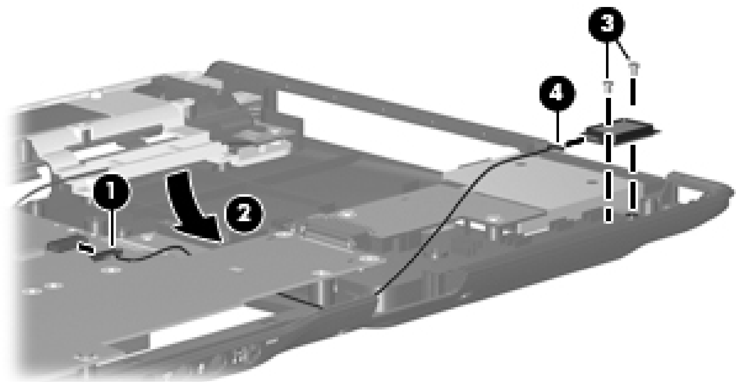
Bluetooth Module Spare Part Number Information	
Bluetooth module (includes Bluetooth module cable)	412766-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

2. Disconnect the Bluetooth module cable ❶ from the system board.

✎ The Bluetooth module cable is included with the Bluetooth module spare part kit and is also included in the Cable Kit, spare part number 434677-001.

3. Route the Bluetooth module cable ❷ under the system board.
4. Remove the two silver Phillips PM2.0×3.0 screws ❸ that secure the Bluetooth module to the base enclosure.
5. Remove the Bluetooth module ❹.



Removing the Bluetooth Module

Reverse the above procedure to install the Bluetooth module.

5.19 USB/Magnetic Board

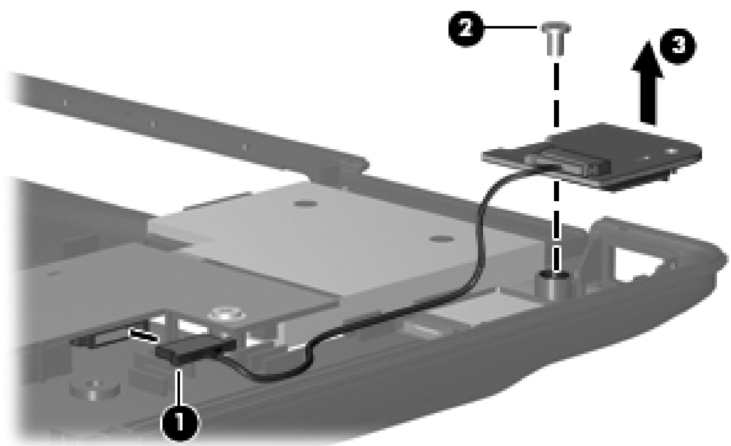
USB/Magnetic Board Spare Part Number Information	
USB/magnetic board (includes USB/magnetic board cable) for use with dv9000	432990-001
USB/magnetic board (includes USB/magnetic board cable) for use with dv9200	438370-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

2. Disconnect the USB/magnetic board cable ❶ from the ExpressCard assembly.

✎ The USB/magnetic board cable is included with the USB/magnetic board spare part kit and is also included in the Cable Kit, spare part number 434677-001.

3. Remove the silver Phillips PM2.5×5.0 screw ❷ that secures the USB/magnetic board to the base enclosure.
4. Remove the USB/magnetic board ❸.



Removing the USB/Magnetic Board

Reverse the above procedure to install the USB/magnetic board.

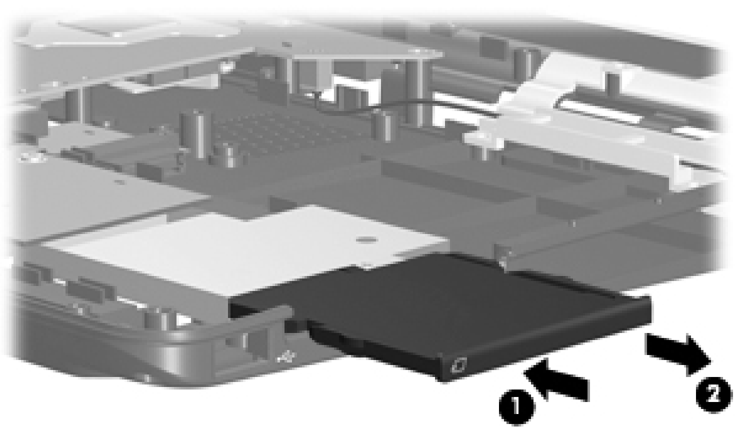
5.20 ExpressCard Assembly

ExpressCard Assembly Spare Part Number Information	
ExpressCard assembly	432988-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)
   - ❏ USB/magnetic board (Section 5.19)

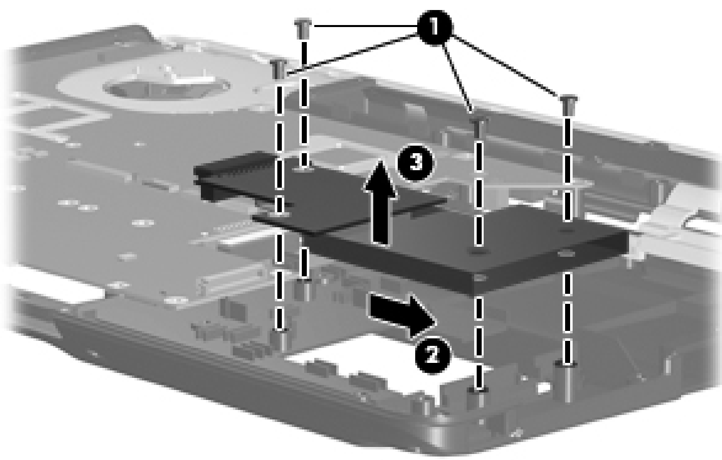
2. Push in on the ExpressCard slot bezel ❶ to release the bezel from the ExpressCard slot.
3. Remove the ExpressCard slot bezel ❷.

✎ The ExpressCard slot bezel is included in the Plastics Kit, spare part number 432981-001.



Removing the ExpressCard Slot Bezel

4. Remove the four silver Phillips PM2.5×5.0 screws ❶ that secure the ExpressCard assembly to the system board.
5. Slide the ExpressCard assembly ❷ to the right to disconnect it from the system board.
6. Remove the ExpressCard assembly ❸.



Removing the ExpressCard Assembly

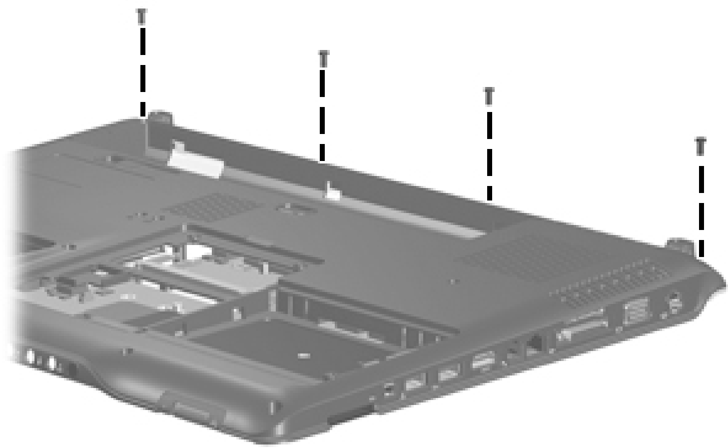
Reverse the above procedure to install the ExpressCard assembly.

5.21 Top Cover Support Trim

Top Cover Support Trim Spare Part Number Information	
Top cover support trim	432978-001

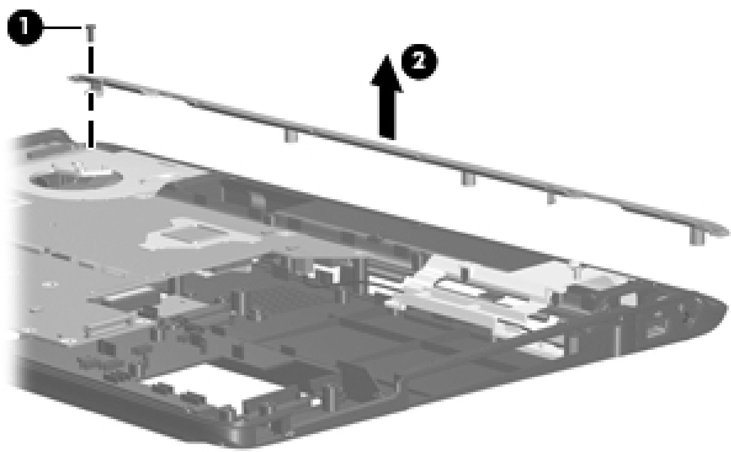
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

2. Turn the computer upside down with the front toward you.
3. Remove the four Phillips PM2.5×8.0 screws that secure the top cover support trim to the computer.



Removing the Top Cover Support Trim Screws

4. Turn the computer right-side up with the front toward you.
5. Remove the Phillips PM2.5×8.0 screw ❶ that secures the top cover support trim to the computer.
6. Remove the top cover support trim ❷.



Removing the Top Cover Support Trim

Reverse the above procedure to install the top cover support trim.

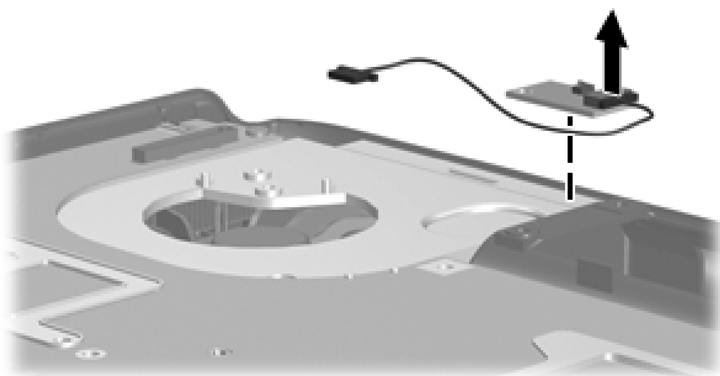
5.22 Display Lid Switch Module

Display Lid Switch Module Spare Part Number Information	
Display lid switch module	432993-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)
   - ❏ Top cover support trim (Section 5.21)

2. Remove the display lid switch module by firmly pulling it off the fan/heat sink assembly.

✎ The display lid switch module is secured to the fan/heat sink assembly by 2-sided tape. Apply removal force to the middle of the module to remove it.



Removing the Display Lid Switch Module

✎ The display lid switch module cable is included with the display lid switch module spare part kit and is also included in the Cable Kit, spare part number 434677-001.

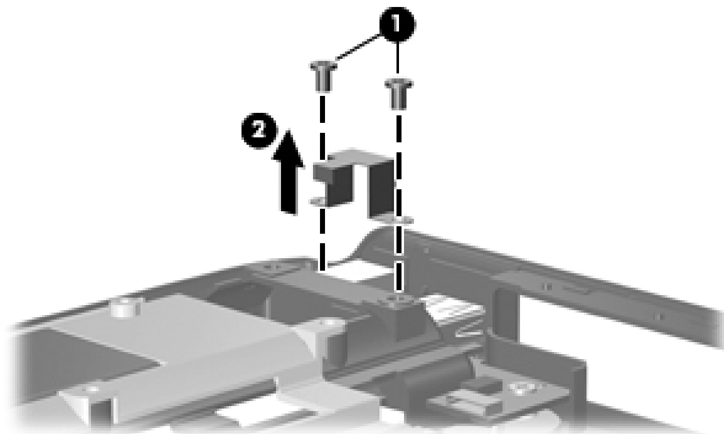
Reverse the above procedure to install the display lid switch module.

5.23 Power Connector Assembly

Power Connector Assembly Spare Part Number Information	
Power connector assembly (includes power connector assembly cable and power connector assembly bracket)	432985-001
USB board	432989-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)

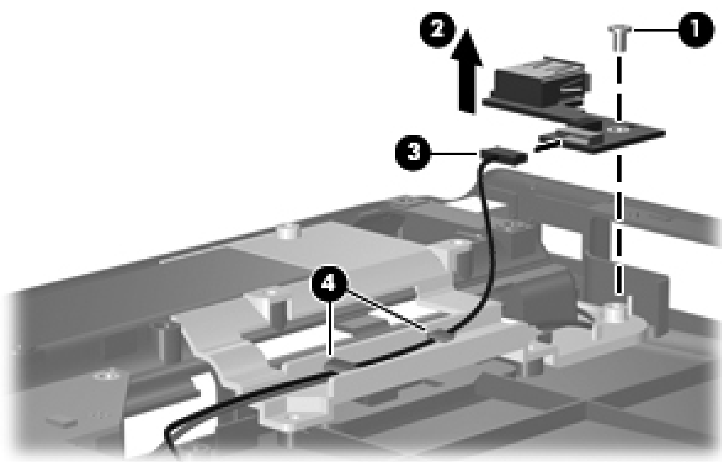
2. Remove the two silver Phillips PM2.5×5.0 screws ❶ that secure the power connector assembly bracket to the computer.
3. Remove the power connector assembly bracket ❷.



Removing the Power Connector Assembly Bracket

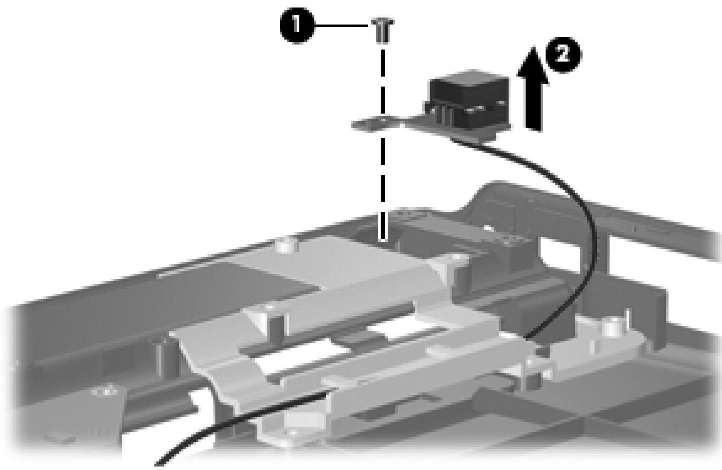
4. Remove the silver Phillips PM2.5×5.0 screw ❶ that secures the USB board to the computer.
5. Remove the USB board ❷.
6. Disconnect the USB board cable ❸ from the USB board and remove the cable from the clips ❹ in the base enclosure.

✎ The USB board cable is included with the USB board spare part kit and is also included in the Cable Kit, spare part number 434677-001.



Removing the USB Board

7. Remove the black Phillips PM2.5×5.0 screw ❶ that secures the power connector assembly to the computer.
8. Remove the power connector assembly ❷ from its location in the base enclosure.



Releasing the Power Connector Assembly

Reverse the above procedure to install the USB board and power connector assembly.

5.24 System Board

System Board Spare Part Number Information	
For use with only computer models using Intel processors:	
G73 (includes 512-MB of video RAM)	434660-001
G73M (includes 256-MB of video RAM)	434659-001
G73 (includes 512 MB of video RAM) - for Germany only	441620-001
G73 (includes 256 MB of video RAM) - for EMEA only	445178-001
For use only with UMA computer models using AMD processors	444002-001

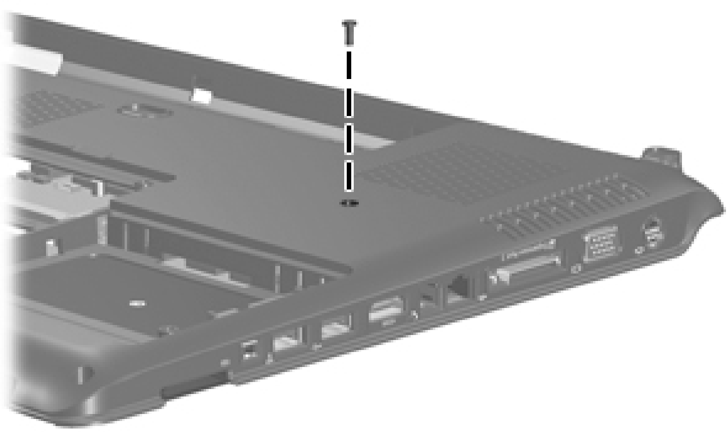
✎ When replacing the system board, ensure that the following components are removed from the defective system board and installed on the replacement system board:

- Memory modules (Section 5.6)
- RTC battery (Section 5.7)
- Mini Card module (Section 5.8)
- Bluetooth module (Section 5.18)
- ExpressCard assembly (Section 5.20)
- Optical drive connector module (Section 5.24)
- Fan/heat sink assembly (Section 5.25)
- Processor (Section 5.26)

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)

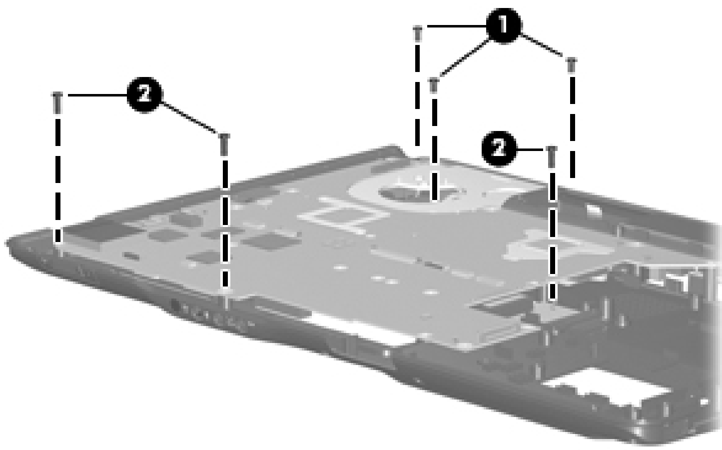
- ❏ Top cover (Section 5.15)
- ❏ Wireless switch board (Section 5.16)
- ❏ Audio board (Section 5.17)
- ❏ USB/magnetic board (Section 5.19)
- ❏ Top cover support trim (Section 5.21)
- ❏ USB board (Section 5.23)
- ❏ Power connector assembly (Section 5.23)

2. Turn the computer upside down with the front toward you.
3. Remove the Phillips PM2.5×8.0 screw that secures the system board to the base enclosure.



Removing the System Board Screw, Part 1

4. Remove the three Phillips PM2.5×8.0 screws ❶ and the three silver Phillips PM2.5×5.0 screws ❷ that secure the system board to the base enclosure.

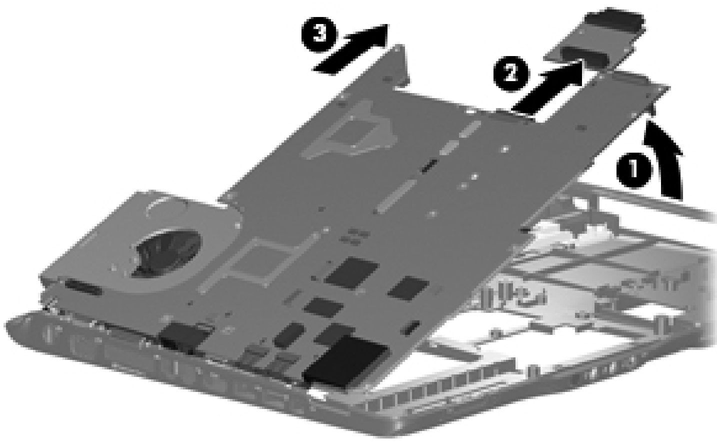


Removing the System Board Screws, Part 2

5. Lift the right side of the system board ❶ until it rests at an angle.
6. Remove the optical drive connector board ❷.

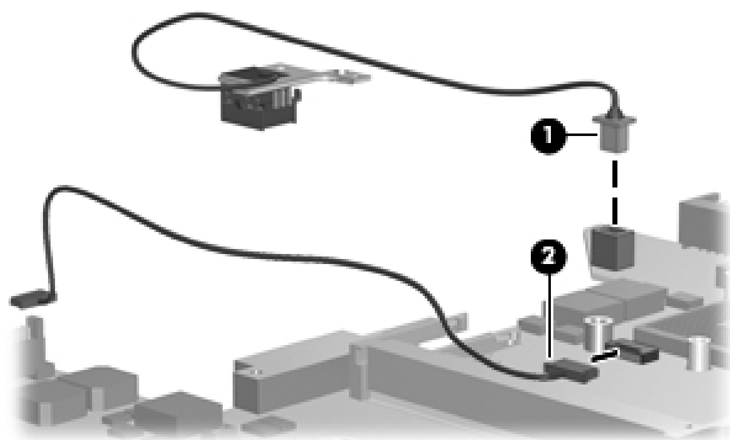
✎ The optical drive connector board is available using spare part number 432992-001.

7. Slide the system board ❸ to the right until the connectors on the left side of the system board disengage from the base enclosure.
8. Remove the system board.



Removing the System Board

9. If it is necessary to replace the power connector assembly or the USB board cable, turn the system board upside down with the front toward you.
10. Disconnect the power connector assembly cable ❶ and the USB board cable ❷ from the system board.



Removing the System Board Cables

Reverse the above procedure to install the system board, power connector assembly, and audio board cable.

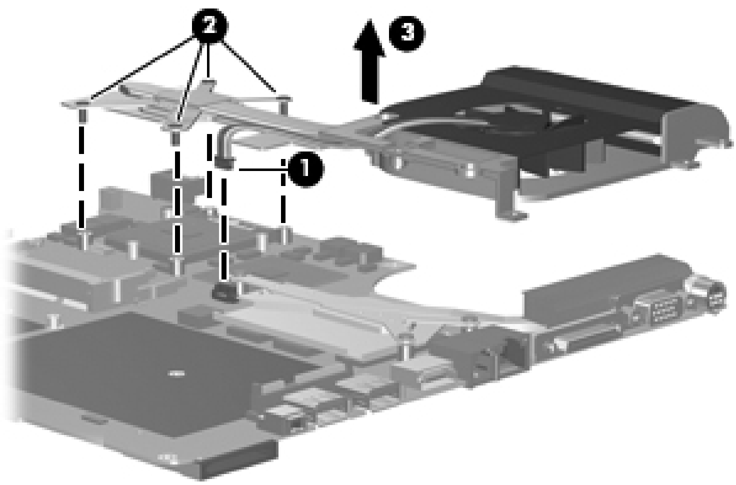
5.25 Fan/Heat Sink Assembly

Fan/Heat Sink Assembly Spare Part Number Information	
For use only with computer models using Intel processors	434678-001
For use only with computer models using AMD processors	438606-001

✎ When replacing the fan/heat sink assembly, be sure the display lid switch module is removed from the defective fan/heat sink assembly and installed on the replacement fan/heat sink assembly. Refer to Section 5.22, “Display Lid Switch Module,” for display lid switch module removal information.

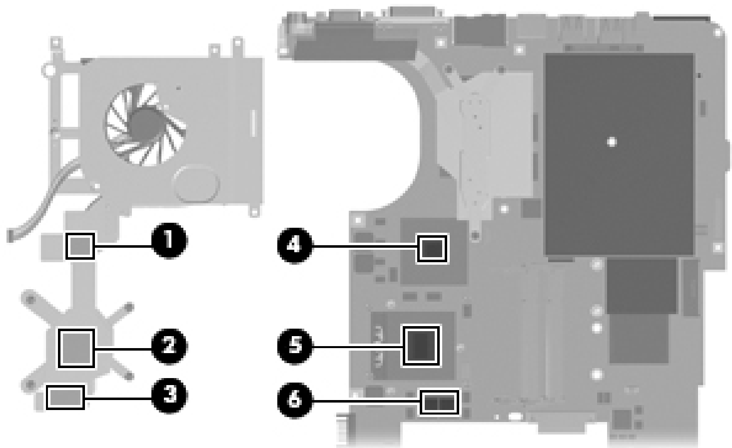
1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❏ Hard drive (Section 5.4)
   - ❏ Optical drive (Section 5.9)
   - ❏ Switch cover (Section 5.10)
   - ❏ Keyboard (Section 5.11)
   - ❏ Speaker assembly (Section 5.12)
   - ❏ Display assembly (Section 5.14)
   - ❏ Top cover (Section 5.15)
   - ❏ Wireless switch board (Section 5.16)
   - ❏ Audio board (Section 5.17)
   - ❏ USB/magnetic board (Section 5.19)
   - ❏ Top cover support trim (Section 5.21)
   - ❏ USB board (Section 5.23)
   - ❏ Power connector assembly (Section 5.23)
   - ❏ System board (Section 5.24)

2. Turn the system board upside down with the expansion port and external monitor port toward you.
3. Disconnect the fan cable ❶ from the system board.
4. Loosen the four captive Phillips PM2.5×6.0 screws ❷ that secure the fan/heat sink assembly to the system board.
5. Remove the fan/heat sink assembly ❸.



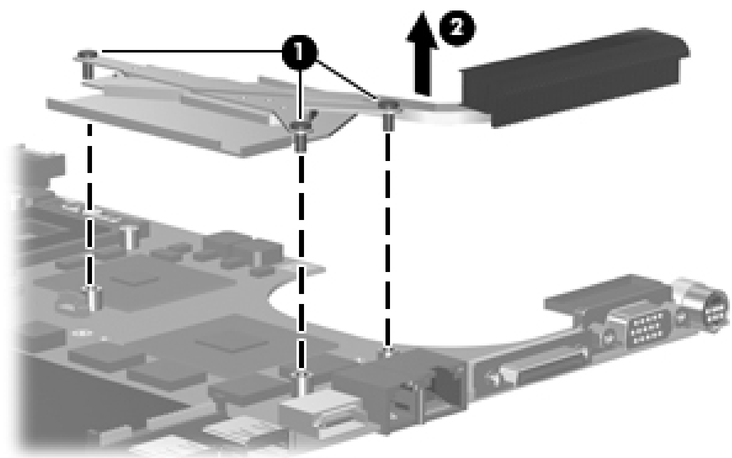
Removing the Fan/Heat Sink Assembly

✎ The thermal pads and thermal paste should be thoroughly cleaned from the surfaces of the fan/heat sink assembly ❶, ❷, and ❸, the system board components ❹ and ❻, and the processor ❺ each time the fan/heat sink assembly is removed. Thermal pads and thermal paste should be installed on all surfaces before the fan/heat sink assembly is reinstalled. Thermal pads and thermal paste are included with all fan/heat sink assembly, system board, and processor spare part kits.



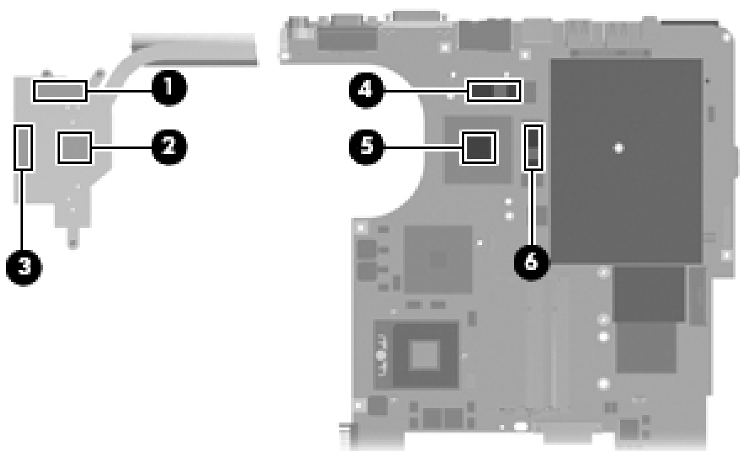
Thermal Pad and Thermal Paste Locations

6. Loosen the three captive silver Phillips PM2.5×5.0 screws ❶ that secure the heat sink to the system board.
7. Remove the heat sink ❷.



Removing the Heat Sink

✎ The thermal pads and thermal paste should be thoroughly cleaned from the surfaces of the heat sink ❶, ❷, and ❸ and the system board components ❹, ❺, and ❻, each time the heat sink is removed. Thermal pads and thermal paste should be installed on all surfaces before the heat sink is reinstalled. Thermal pads and thermal paste are included with all heat sink and system board spare part kits.



Thermal Pad and Thermal Paste Locations

Reverse the above procedure to install the fan/heat sink assembly.

5.26 Processor

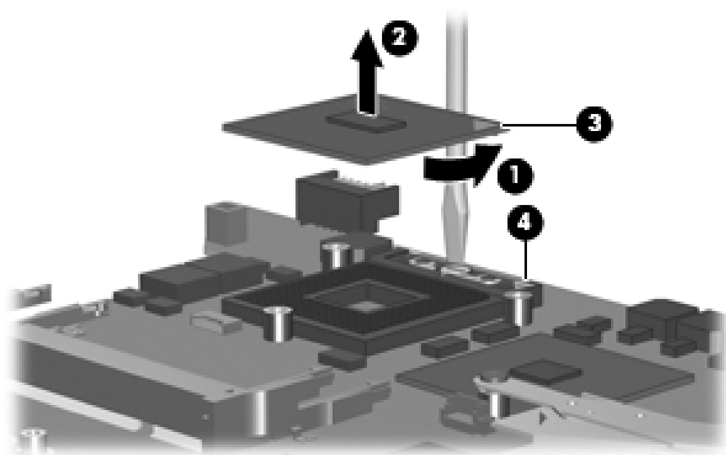
Processor Spare Part Number Information	
Processors (include thermal pads and thermal paste)	
Intel Core Duo T7200 (2.00-GHz)	434730-001
Intel Core Duo T5600 (1.83-GHz)	434731-011
Intel Core Duo T5500 (1.66-GHz), for dv9200 models	436157-001
Intel Core Duo T5300 (1.73-GHz), for dv9200 models	446814-001
Intel Core Duo T5200 (1.66-GHz), for dv9200 models	436900-001
Intel Core Duo T2250 (1.66-GHz), for dv9200 models	430897-001
Intel Core Duo T2350 (1.86-GHz)	441762-001
Intel Core Duo T5200 (1.66-GHz)	436902-001
Intel Pentium Dual-Core T2080 (1.73-GHz)	446812-001
AMD Turion TL-64 (2.2-GHz)	441535-001
AMD Turion TL-60 (2.0-GHz)	436257-001
AMD Turion TL-58 (1.9-GHz)	448561-001
AMD Turion TL-56 (1.8-GHz)	431373-001
AMD Athlon 64 TK-53 (1.7-GHz)	451013-001
Processor bracket 7.9 (not illustrated), for use with the following processors: 434730-001 434731-001 436157-001 436900-001 446814-001	450370-001
Processor bracket 8.1 (not illustrated), for use with the following processors: 430897-001, 446812-001, 441762-001	450371-001

1. Prepare the computer for disassembly (Section 5.3) and remove the following components:
   - ❑ Hard drive (Section 5.4)
   - ❑ Optical drive (Section 5.9)

- ❏ Switch cover (Section 5.10)
- ❏ Keyboard (Section 5.11)
- ❏ Speaker assembly (Section 5.12)
- ❏ Display assembly (Section 5.14)
- ❏ Top cover (Section 5.15)
- ❏ Wireless switch board (Section 5.16)
- ❏ Audio board (Section 5.17)
- ❏ USB/magnetic board (Section 5.19)
- ❏ Top cover support trim (Section 5.21)
- ❏ USB board (Section 5.23)
- ❏ Power connector assembly (Section 5.23)
- ❏ System board (Section 5.24)
- ❏ Fan/heat sink assembly (Section 5.25)

2. Turn the processor locking screw ❶ one-half turn counterclockwise until you hear a click.
3. Lift the processor ❷ straight up and remove it.

✎ The gold triangle ❸ on the processor should be aligned with the triangle icon ❹ embossed on the processor socket when you install the processor.



Removing the Processor

Reverse the above procedure to install the processor.

6

Specifications

This chapter provides physical and performance specifications.

Table 6-1

Computer

Dimensions		
With Dual Lamp Display		
Length	28.5 cm	11.22 in
Width	39.6 cm	15.59 in
Height (varies front to rear)	3.2 to 4.2 cm	1.26 to 1.65 in
With Single Lamp Display		
Length	28.5 cm	11.22 in
Width	39.6 cm	15.59 in
Height (varies front to rear)	3.3 to 4.5 cm	1.26 to 1.65 in
Weight (varies by configuration)		
With Dual Lamp Display	3.79 kg	8.35 lbs
With Single Lamp Display	3.54 kg	7.80 lbs
Second hard drive adds:	0.13 kg	0.28 lbs
Camera adds:	0.009 kg	0.02 lbs
Stand-alone power requirements		
Operating voltage	18.5 V dc —19.0 V dc	
Operating current	3.5 A or 4.74 A	

Table 6-1

Computer *(Continued)*

Temperature		
Operating*	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%, 38.7°C (101.6°F) maximum wet bulb temperature	
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft
Shock		
Operating	125 g, 2 ms, half-sine	
Nonoperating	200 g, 2 ms, half-sine	
Random Vibration		
Operating	0.75 g zero-to-peak, 10 Hz to 500 Hz, 0.25 oct/min sweep rate	
Nonoperating	1.50 g zero-to-peak, 10 Hz to 500 Hz, 0.5 oct/min sweep rate	

*Applicable product safety standards specify thermal limits for plastic surfaces. The computer operates well within this range of temperatures.

Table 6-2

17.0-inch, WSXGA+, TFT Display

Dimensions		
Height	23.00 cm	9.06 in
Width	36.90 cm	14.49 in
Diagonal	43.40 cm	17.09 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1	
Brightness	180 nits typical	
Pixel resolution		
Pitch	0.197 × 0.197 mm	
Format	1680 × 1050	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4 W	
Viewing angle	+/-65° horizontal, +/-50° vertical typical	

Table 6-3

17.0-inch, WXGA+, TFT Display

Dimensions		
Height	23.00 cm	9.06 in
Width	36.90 cm	14.49 in
Diagonal	43.40 cm	17.09 in
Number of colors	Up to 16.8 million	
Contrast ratio	200:1	
Brightness	180 nits typical	
Pixel resolution		
Pitch	0.259 × 0.259 mm	
Format	1280 × 800	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	4 W	
Viewing angle	+/-40° horizontal, +20/-40° vertical typical	

Table 6-4

Hard Drives

	160-GB*	120-GB*
Dimensions		
Height	9.5 mm	9.5 mm
Width	70 mm	70 mm
Weight	102 g	102 g
Interface type	ATA-7	ATA-5
Transfer rate		
Synchronous (maximum)	150 MB/sec	100 MB/sec
Security	ATA security	ATA security
Seek times (typical read, including setting)		
Single track	2 ms	3 ms
Average	12 ms	13 ms
Maximum	21 ms	24 ms
Logical blocks†	312,581,808	234,433,260
Disk rotational speed	5400 rpm	5400 rpm
Operating temperature	5°C to 60°C (41°F to 140°F)	5°C to 55°C (41°F to 131°F)

✎ Certain restrictions and exclusions apply. Consult technical support by selecting **Start > Help and Support > Contact support** for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Accessible capacity is less. Actual drive specifications may differ slightly.

Table 6-4
Hard Drives *(Continued)*

	100-GB*	**80-GB***
Dimensions		
Height	9.5 mm	9.5 mm
Width	70 mm	70 mm
Weight	102 g	102 g
Interface type	ATA-5	ATA-5
Transfer rate		
Synchronous (maximum)	100 MB/sec	100 MB/sec
Security	ATA security	ATA security
Seek times (typical read, including setting)		
Single track	3 ms	3 ms
Average	13 ms	13 ms
Maximum	24 ms	24 ms
Logical blocks†	195,364,233	156,301,488
Disk rotational speed	5400 rpm	
Operating temperature	5°C to 55°C (41°F to 131°F)	

✎ Certain restrictions and exclusions apply. Consult technical support by selecting **Start > Help and Support > Contact support** for details.

*1 GB = 1 billion bytes when referring to hard drive storage capacity. Accessible capacity is less. Actual drive specifications may differ slightly.

Table 6-5
Primary 8-cell, Li-Ion Battery

Dimensions		
Height	1.83 cm	0.72 in
Width	27.18 cm	10.70 in
Depth	5.23 cm	2.06 in
Weight	0.34 kg	0.75 lb
Energy		
Voltage	14.4 V	
Amp-hour capacity	4.4 Ah	
Watt-hour capacity	63 Wh	
Temperature		
Operating	5°C to 45°C	41°F to 113°F
Nonoperating	0°C to 60°C	32°F to 140°F

Table 6-6
DVD/CD-RW Combo Drive

Applicable disc	**Read:** DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R, CD-RW Photo CD (single and multisession) CD-Bridge	**Write:** CD-R and CD-RW
Access time	CD media	DVD media
Random	< 110 ms	< 130 ms
Cache buffer	2 MB	
Data transfer rate		
CD-R (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
CD-RW (10X)	1500 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	

Table 6-7
DVD±RW/R and
CD-RW Double-Layer Combo Drive

Applicable disc	**Read:** DVD-R, DVD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), CD-ROM (Mode 1 and 2) CD Digital Audio CD-XA ready (Mode 2, Form 1 and 2) CD-I ready (Mode 2, Form 1 and 2) CD-R, CD-RW Photo CD (single and multisession) CD-Bridge	**Write:** CD-R and CD-RW DVD-R and DVD-RW
Access time	CD media	DVD media
Random	< 175 ms	< 230 ms
Cache buffer	2 MB	
Data transfer rate		
CD-R (16X)	2,400 KB/s (150 KB/s at 1X CD rate)	
CD-RW (8X)	1,200 KB/s (150 KB/s at 1X CD rate)	
CD-ROM (24X)	3,600 KB/s (150 KB/s at 1X CD rate)	
DVD (8X)	10,800 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-R (4X)	5,400 KB/s (1,352 KB/s at 1X DVD rate)	
DVD-RW (2X)	2,700 KB/s (1,352 KB/s at 1X DVD rate)	
Multiword DMA mode 2	16.6 MB/s	

Table 6-8

System DMA

Hardware DMA	System Function
DMA0	Not applicable
DMA1	Not applicable
DMA2	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller
DMA5	Available for ExpressCard
DMA6	Not assigned
DMA7	Not assigned

Table 6-9

System Interrupts

Hardware IRQ	System Function
IRQ0	System timer
IRQ1	Quick Launch buttons
IRQ2	Cascaded
IRQ3	USB2 Enhanced Host Controller—24CD
IRQ4	COM1
IRQ5*	Conexant AC—Link Audio SMBus Controller—24C3 Data Fax Modem with SmartCP
IRQ6	Diskette drive
IRQ7*	Parallel port
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ10*	USB UHCI controller—24C2 GM/GME Graphic Controller Realtek RTL8139 Family PCI fast Ethernet Controller
IRQ11	USB EHCI controller—24CD USB UHCI controller—24C4 USB UHCI controller—24C7 Pro/Wireless 2200BG TI OHCI 1394 host controller TI PCI1410 CardBus controller

*Default configuration

✎ ExpressCard may assert IRQ3, IRQ4, IRQ5, IRQ7, or IRQ20.

Table 6-9

System Interrupts *(Continued)*

Hardware IRQ	System Function
IRQ12	Synaptics PS/2 port pointing device
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE channel
IRQ17	Conexant AC -Link Audio
IRQ17	Soft V90 Data Fax Modem with SmartCP
IRQ17	ATi Mobility Radeon Xpress 200 Series
IRQ19	Standard Enhanced PCI to USB Host Controller
IRQ19	Standard OpenHCD USB Host Controller
IRQ19	Standard OpenHCD USB Host Controller
IRQ20	TI 6411 PCIxx21/x515 Cardbus Controller
IRQ20	TI OHCI Compliant IEEE 1394 Host Controller
IRQ21	TI Integrated PCIxx21 FlashMedia Controller
IRQ21	Broadcom 802.11b/g WLAN
IRQ21	Microsoft ACPI-compliant system
IRQ22	Realtek RTL8100CL Family PCI fast Ethernet Controller
IRQ23	SDA Standard Compliant SD Host Controller

*Default configuration

✎ ExpressCard may assert IRQ3, IRQ4, IRQ5, IRQ7, or IRQ20.

Table 6-10

System I/O Addresses

I/O Address (hex)	**System Function** (shipping configuration)
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000020-0x00000021	Programmable interrupt controller
0x0000002E-0x0000002F	System board resources
0x00000040-0x00000043	System timer
0x00000060-0x00000060	Quick Launch Buttons
0x00000061-0x00000061	System speaker
0x00000062-0x00000062	Microsoft ACPI-Compliant Embedded Controller
0x00000064-0x00000064	Quick Launch Buttons
0x00000066-0x00000066	Microsoft ACPI-Compliant Embedded Controller
0x00000070-0x00000071	System CMOS/real time clock
0x00000072-0x00000073	System board resources
0x00000080-0x0000008F	Direct memory access controller
0x00000092-0x00000092	System board resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000B0-0x000000B1	System board resources
0x000000C0-0x000000DF	Direct memory access controller
0x000000F0-0x000000FE	Numeric data processor
0x00000170-0x00000177	Secondary IDE Channel

Table 6-10

System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
0x000001F0-0x000001F7	Primary IDE Channel
0x00000220-0x0000022F	System board resources
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x00000280-0x00000293	System board resources
0x00000376-0x00000376	Secondary IDE Channel
0x000003B0-0x000003BB	PCI standard PCI-to-PCI bridge
0x000003B0-0x000003BB	ATI MOBILITY RADEON Xpress 200 Series
0x000003C0-0x000003DF	PCI standard PCI-to-PCI bridge
0x000003C0-0x000003DF	ATI MOBILITY RADEON Xpress 200 Series
0x000003F6-0x000003F6	Primary IDE Channel
0x0000040B-0x0000040B	System board resources
0x000004D0-0x000004D1	System board resources
0x000004D6-0x000004D6	System board resources
0x00000530-0x00000537	System board resources
0x00000870-0x0000087F	System board resources
0x00000A79-0x00000A79	ISAPNP Read Data Port
0x00000C00-0x00000C01	System board resources
0x00000C14-0x00000C14	System board resources
0x00000C50-0x00000C52	System board resources
0x00000C6C-0x00000C6C	System board resources

Table 6-10

System I/O Addresses *(Continued)*

I/O Address (hex)	**System Function** (shipping configuration)
0x00000C6F-0x00000C6F	System board resources
0x00000CD4-0x00000CD5	System board resources
0x00000CD6-0x00000CD7	System board resources
0x00000CD8-0x00000CDF	System board resources
0x00000D00-0x0000FFFF	PCI bus
0x00000F40-0x00000F47	System board resources
0x00001080-0x00001080	System board resources
0x00008000-0x0000805F	System board resources
0x00008100-0x000081FF	System board resources
0x00008400-0x0000840F	ATI SMBus
0x00008410-0x0000841F	Standard Dual Channel PCI IDE Controller
0x00009000-0x00009FFF	PCI standard PCI-to-PCI bridge
0x00009000-0x00009FFF	ATI MOBILITY RADEON Xpress 200 Series
0x0000A000-0x0000A0FF	Realtek RTL8139/810x Family Fast Ethernet NIC
0x0000F000-0x0000FFFF	PCI standard PCI-to-PCI bridge
0x0000FD00-0x0000FDFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0x0000FE00-0x0000FEFF	Texas Instruments PCIxx21/x515 Cardbus Controller

Table 6-11

System Memory Map

Memory Map Address (hex)	**System Function** (shipping configuration)
0xD4100000-0xD41FFFFF	PCI standard PCI-to-PCI bridge
0xD4100000-0xD41FFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xD8000000-0xDBFFFFFF	PCI standard PCI-to-PCI bridge
0xD8000000-0xDBFFFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xFAC00000-0xFEBFFFFF	PCI standard PCI-to-PCI bridge
0xF6C00000-0xFABFFFFF	PCI standard PCI-to-PCI bridge
0xD4000000-0xD4000FFF	Standard OpenHCD USB Host Controller
0xD4001000-0xD4001FFF	Standard OpenHCD USB Host Controller
0xD4002000-0xD4002FFF	Standard Enhanced PCI to USB Host Controller
0xD4003000-0xD40033FF	ATI SMBus
0xFFF80000-0xFFFFFFFF	System board
0xE0000000-0xE03FFFFF	System board
0xE0000000-0xE03FFFFF	System board resources
0x0000-0x0FFF	System board
0xD4208000-0xD42087FF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xD4200000-0xD4203FFF	Texas Instruments OHCI Compliant IEEE 1394 Host Controller
0xD4204000-0xD4205FFF	Broadcom 802.11b/g WLAN
0xFFEFF000-0xFFEFFFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xFFEFE000-0xFFEFEFFF	Texas Instruments PCIxx21/x515 Cardbus Controller

Table 6-11

System Memory Map *(Continued)*

Memory Map Address (hex)	**System Function** (shipping configuration)
0xF2C00000-0xF6BFFFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xD4206000-0xD4207FFF	Texas Instruments PCIxx21 Integrated FlashMedia Controller
0xD4209000-0xD42090FF	SDA Standard Compliant SD Host Controller
0xD4208C00-0xD4208CFF	SDA Standard Compliant SD Host Controller
0xD4208800-0xD42088FF	SDA Standard Compliant SD Host Controller
0xD4209400-0xD42094FF	Realtek RTL8139/810x Family Fast Ethernet NIC
0xD4003400-0xD40034FF	Conexant AC-Link Audio
0xD4003800-0xD40038FF	SoftV90 Data Fax Modem with SmartCP
0xFEC00000-0xFEC00FFF	System board resources
0xFEE00000-0xFEE00FFF	System board resources
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	PCI standard PCI-to-PCI bridge
0xA0000-0xBFFFF	ATI MOBILITY RADEON Xpress 200 Series
0xD6000-0xD7FFF	PCI bus
0xDC000-0xDDFFF	PCI bus
0xDD000-0xDDFFF	Texas Instruments PCIxx21/x515 Cardbus Controller
0xE0000-0xFFFFF	System board
0x40000000-0xFFFFFFFF	PCI bus

A

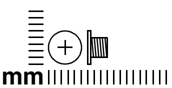
Screw Listing

This appendix provides specification and reference information for the screws used in the computer.

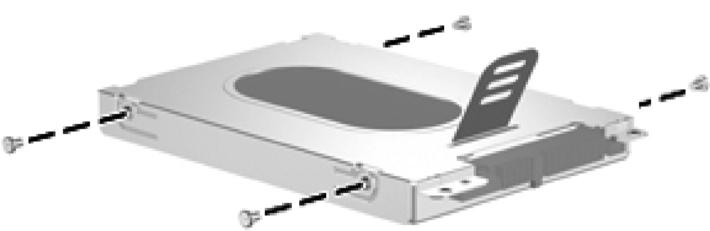
The four Phillips PM3.0×3.0 screws used to secure the hard drive bracket to the hard drive are included in the Hard Drive Bracket Kit, spare part number 434106-001.

Table A-1

Phillips PM3.0×3.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	4	3.0 mm	3.0 mm	5.0 mm

Where used:
4 screws that secure the hard drive bracket to the hard drive (documented in Section 5.4)

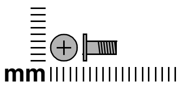


Phillips PM3.0×3.0 Screw Locations

The remaining screws listed in this appendix are available in the Screw Kits, spare part number 434676-001, and the Display Screw Kit, spare part number 432967-001.

Table A-2

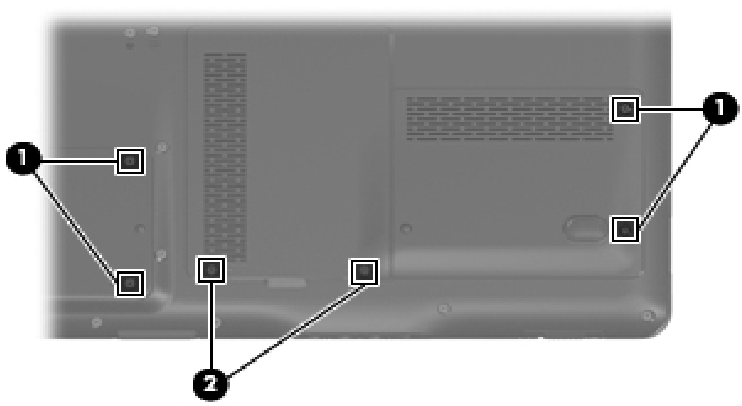
Captive Phillips PM2.0×5.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	6	5.0 mm	2.0 mm	5.0 mm

Where used:

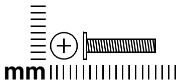
❶ Four screws that secure the hard drive covers to the computer (screws are captured on the cover by C-clips; documented in Section 5.4)

❷ Two screws that secure the memory module compartment cover to the computer (screws are captured on the cover by C-clips; documented in Section 5.6)

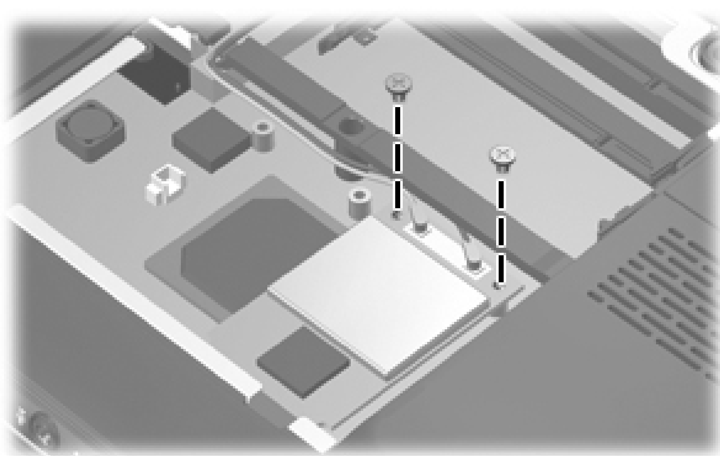


Captive Phillips PM2.0×5.0 Screw Locations

Table A-3
Phillips PM2.0×11.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	2	11.0 mm	2.0 mm	5.0 mm

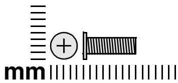
Where used:
2 screws that secure the Mini Card module to the computer (documented in Section 5.8)



Phillips PM2.0×11.0 Screw Locations

Table A-4

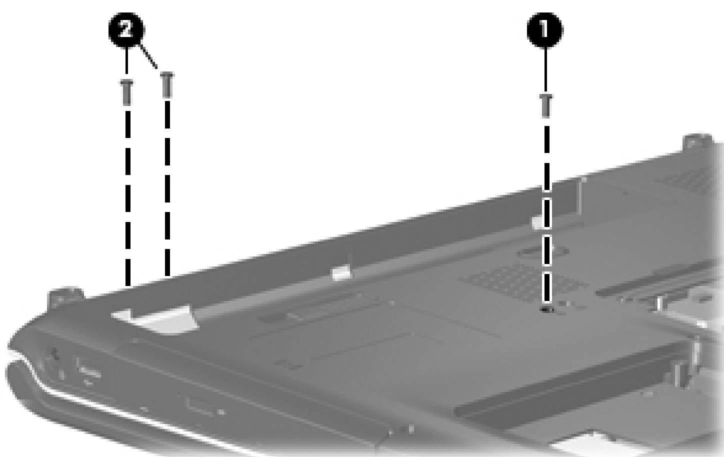
Phillips PM2.5×8.0 Screw

	**Color**	**Qty.**	**Length**	**Thread**	**Head Width**
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the optical drive to the computer (documented in Section 5.9)

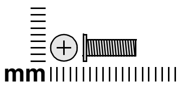
❷ Two screws that secure the display assembly to the computer (documented in Section 5.14)



Phillips PM2.5×8.0 Screw Locations

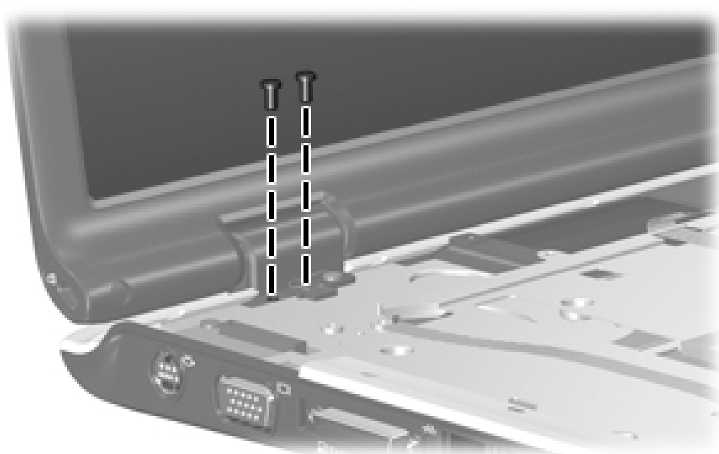
Table A-4

Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:

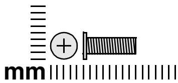
2 screws that secure the display assembly to the computer (documented in Section 5.14)



Phillips PM2.5×8.0 Screw Locations

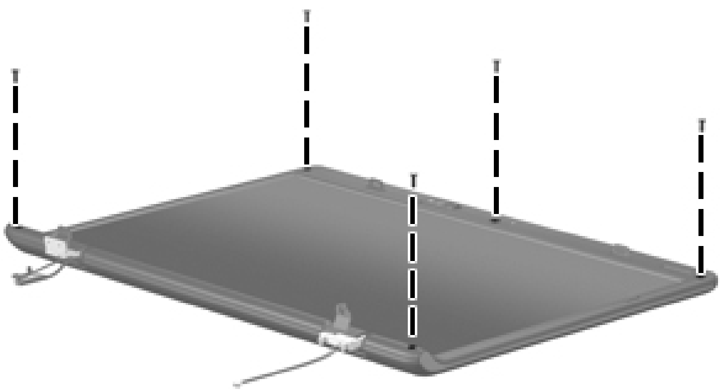
Table A-4

Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

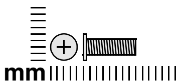
Where used:

5 screws that secure the display bezel to the display enclosure (documented in Section 5.14)

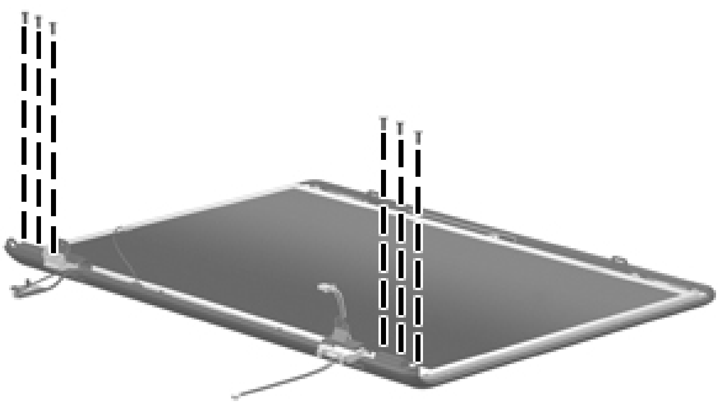


Phillips PM2.5×8.0 Screw Locations

Table A-4
Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

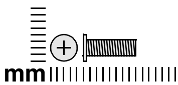
Where used:
6 screws that secure the display panel to the display enclosure (documented in Section 5.14)



Phillips PM2.5×8.0 Screw Locations

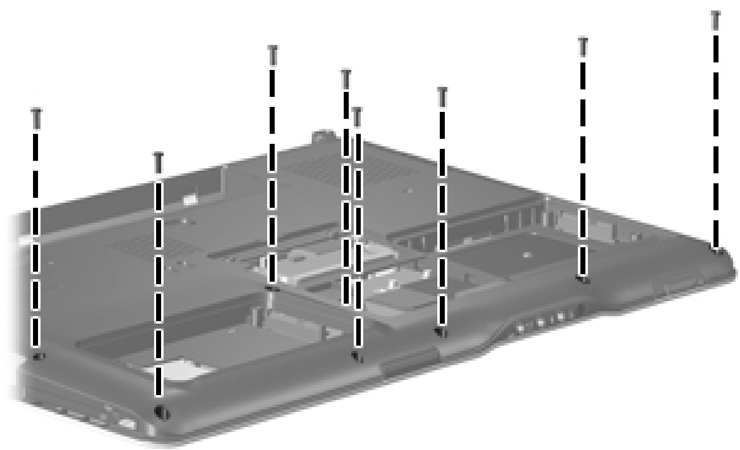
Table A-4

Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:

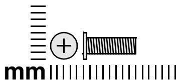
8 screws that secure the top cover to the base enclosure (documented in Section 5.15)



Phillips PM2.5×8.0 Screw Locations

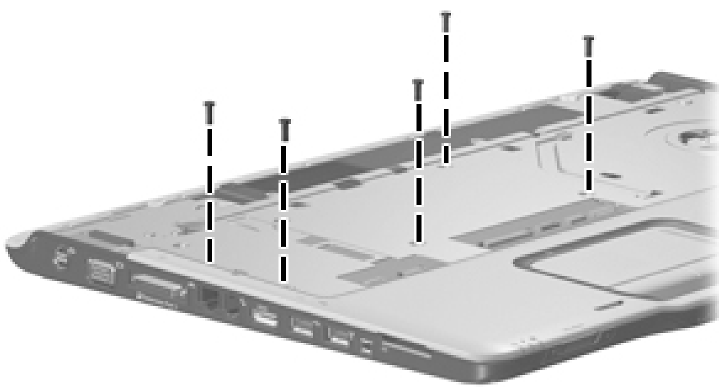
Table A-4

Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

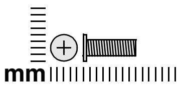
Where used:

5 screws that secure the top cover to the base enclosure (documented in Section 5.15)



Phillips PM2.5×8.0 Screw Locations

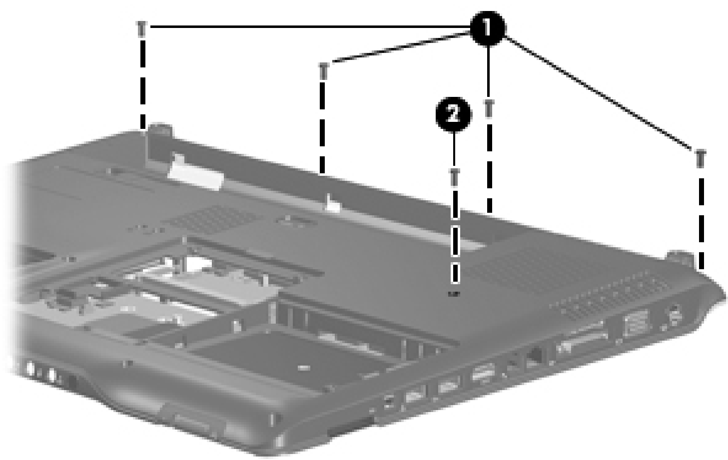
Table A-4
Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:

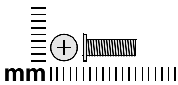
❶ Four screws that secure the top cover support trim to the base enclosure (documented in Section 5.21)

❷ One screw that secures the system board to the base enclosure (documented in Section 5.24)

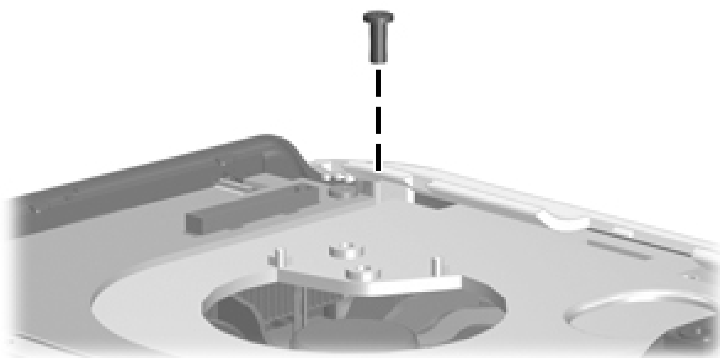


Phillips PM2.5×8.0 Screw Locations

Table A-4
Phillips PM2.5×8.0 Screw *(Continued)*

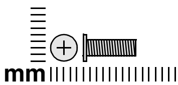
	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:
One screw that secures the top cover support trim to the base enclosure (documented in Section 5.21)



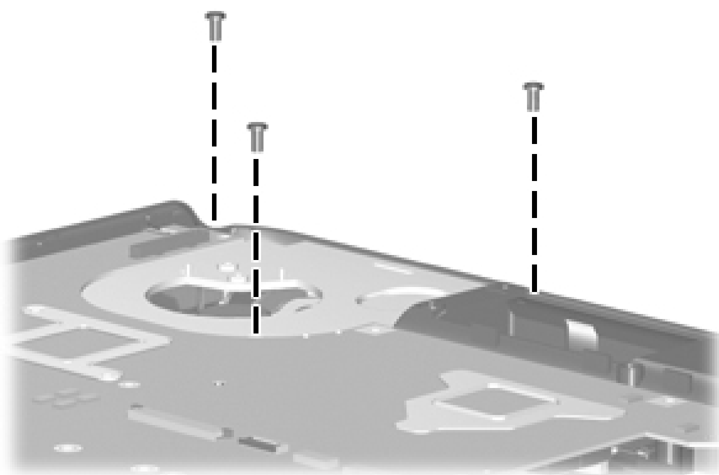
Phillips PM2.5×8.0 Screw Location

Table A-4
Phillips PM2.5×8.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Black	38	8.0 mm	2.5 mm	5.0 mm

Where used:

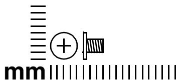
3 screws that secure the system board to the base enclosure (documented in Section 5.24)



Phillips PM2.5×8.0 Screw Locations

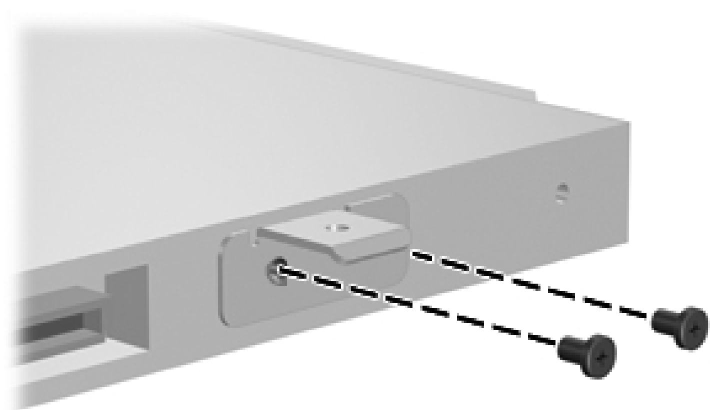
Table A-5

Phillips PM2.0×3.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	8	3.0 mm	2.0 mm	4.0 mm

Where used:

2 screws that secure the optical drive bracket to the optical drive (documented in Section 5.9)



Phillips PM2.0×3.0 Screw Locations

Table A-5
Phillips PM2.0×3.0 Screw *(Continued)*

mm	Color	Qty.	Length	Thread	Head Width
	Silver	8	3.0 mm	2.0 mm	4.0 mm

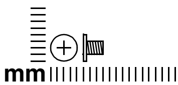
Where used:
4 screws that secure the display hinges to the display panel (documented in Section 5.14)



Phillips PM2.0×3.0 Screw Locations

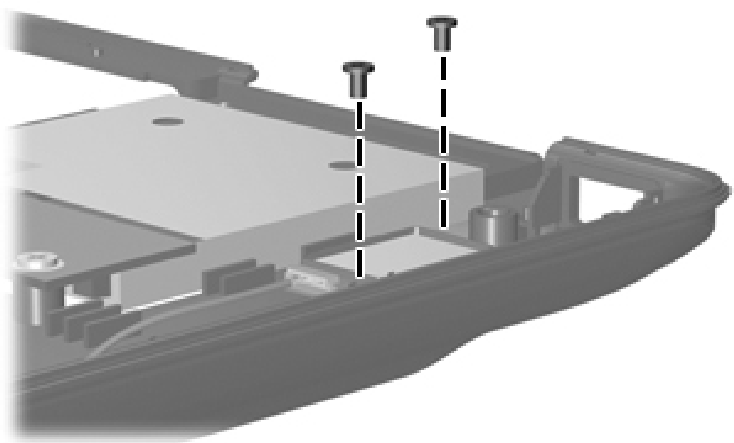
Table A-5

Phillips PM2.0×3.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	8	3.0 mm	2.0 mm	4.0 mm

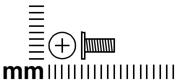
Where used:

2 screws that secure the Bluetooth module to the base enclosure (documented in Section 5.18)

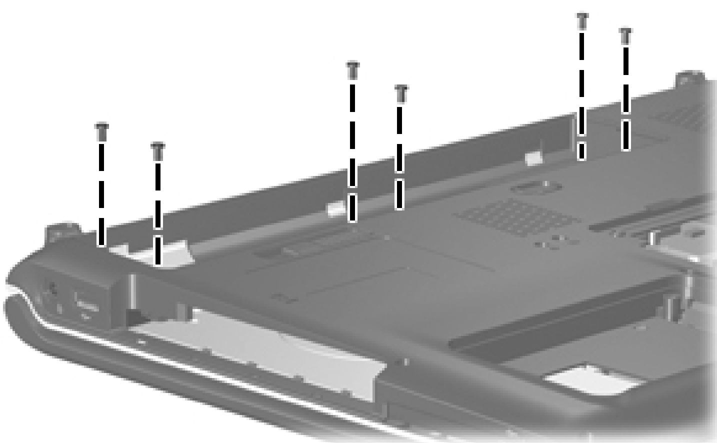


Phillips PM2.0×3.0 Screw Locations

Table A-6
Phillips PM2.0×5.0 Screw

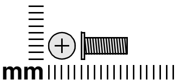
	Color	Qty.	Length	Thread	Head Width
	Silver	6	5.0 mm	2.0 mm	5.0 mm

Where used:
6 screws that secure the switch cover to the computer (documented in Section 5.10)

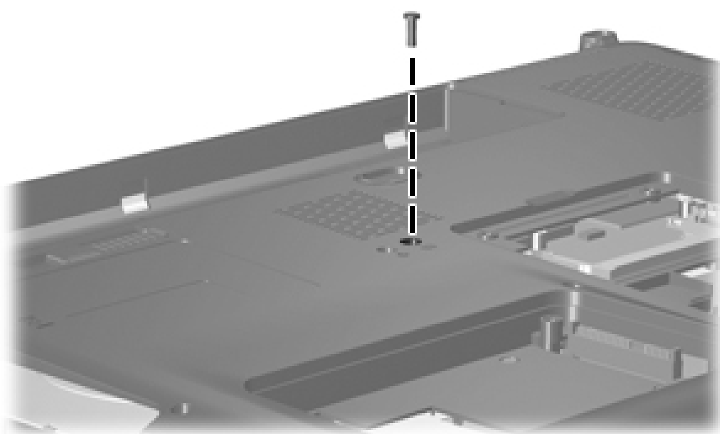


Phillips PM2.0×5.0 Screw Locations

Table A-7
Phillips PM2.5×7.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	1	7.0 mm	2.5 mm	5.0 mm

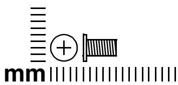
Where used:
One screw that secures the keyboard to the computer (documented in Section 5.11)



Phillips PM2.5×7.0 Screw Location

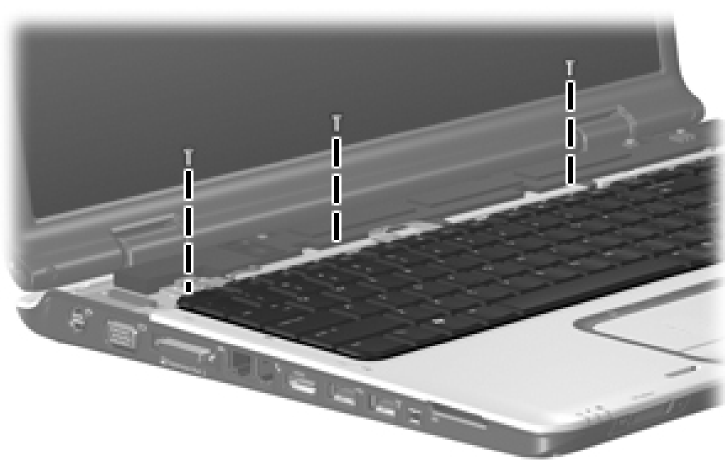
Table A-8

Silver Phillips PM2.5×5.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

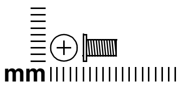
Where used:

3 screws that secure the keyboard to the computer (documented in Section 5.11)



Silver Phillips PM2.5×5.0 Screw Locations

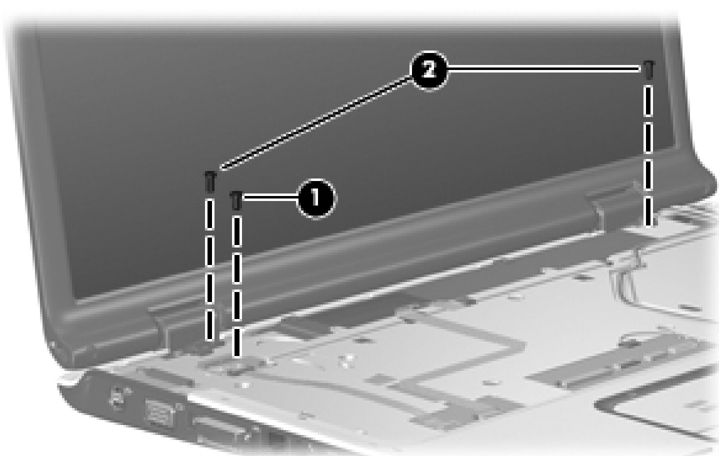
Table A-8
Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ One screw that secures the power button board to the fan/heat sink assembly (documented in Section 5.13)

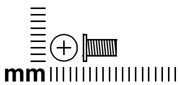
❷ Two screws that secure the display assembly to the computer (documented in Section 5.14)



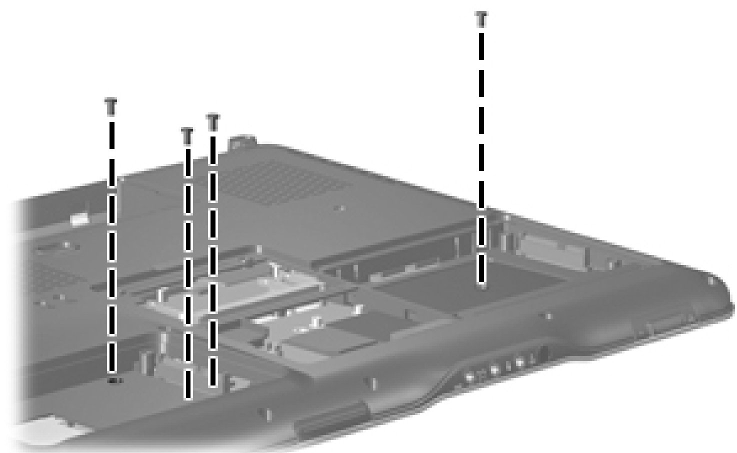
Silver Phillips PM2.5×5.0 Screw Locations

Table A-8

Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

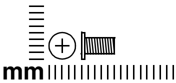
Where used:
4 screws that secure the top cover to the base enclosure (documented in Section 5.15)



Silver Phillips PM2.5×5.0 Screw Locations

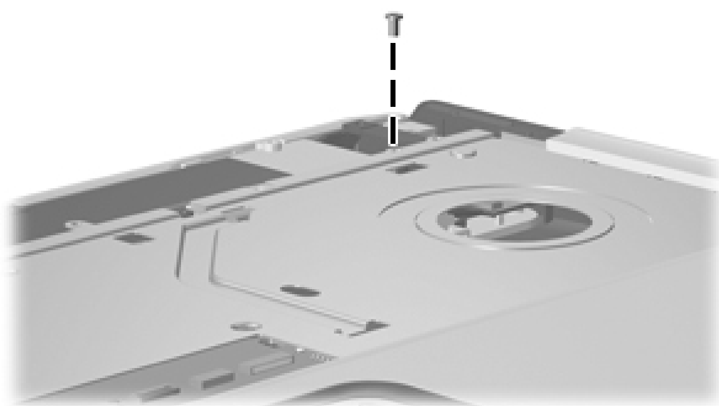
Table A-8

Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

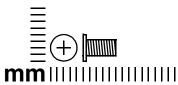
One screw that secures the top cover to the base enclosure (documented in Section 5.15)



Silver Phillips PM2.5×5.0 Screw Location

Table A-8

Silver Phillips PM2.5×5.0 Screw *(Continued)*

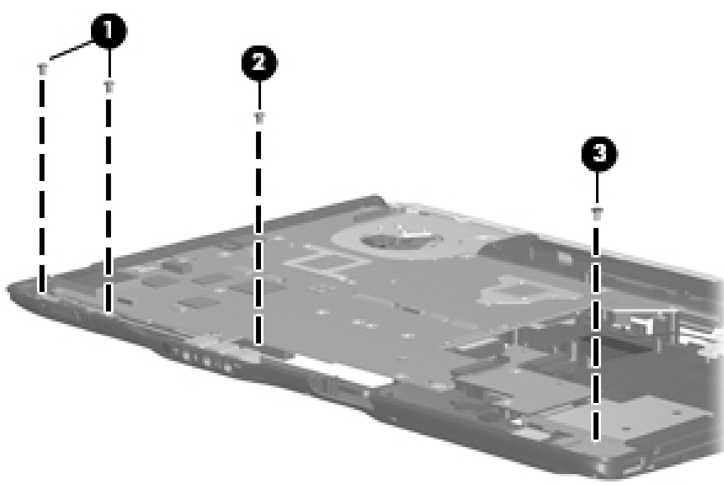
	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ Two screws that secure the wireless switch board to the base enclosure (documented in Section 5.16)

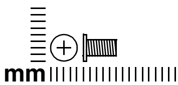
❷ One screw that secures the audio board to the base enclosure (documented in Section 5.17)

❸ One screw that secures the USB/magnetic board to the base enclosure (documented in Section 5.19)



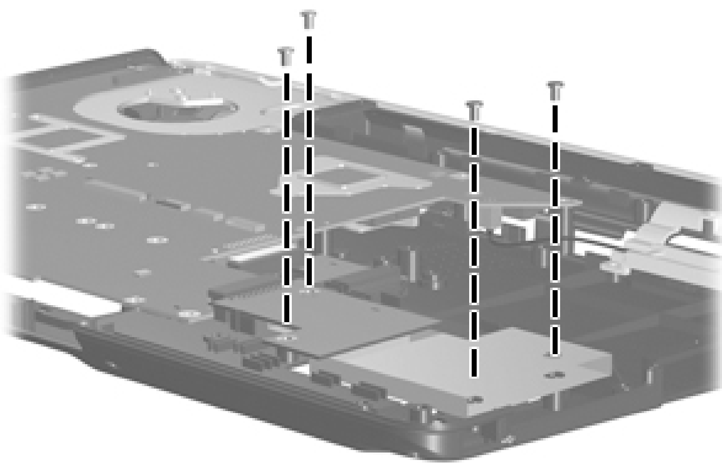
Silver Phillips PM2.5×5.0 Screw Locations

Table A-8
Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

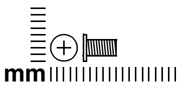
4 screws that secure the ExpressCard assembly to the base enclosure (documented in Section 5.20)



Silver Phillips PM2.5×5.0 Screw Locations

Table A-8

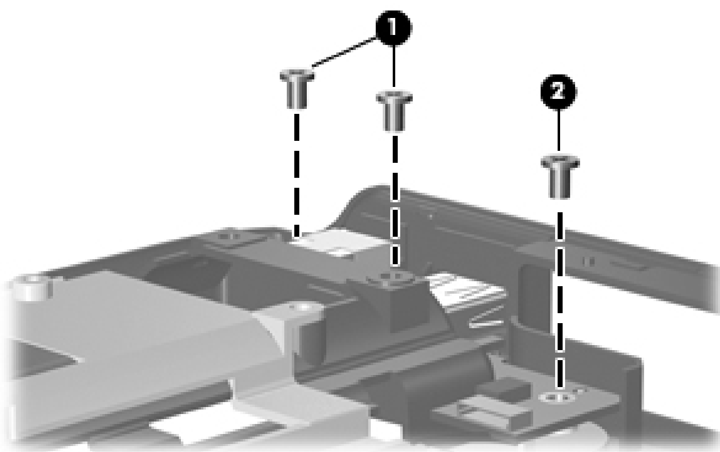
Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

❶ Two screws that secure the power connector assembly bracket to the base enclosure (documented in Section 5.23)

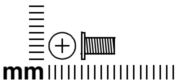
❷ One screw that secures the USB board to the base enclosure (documented in Section 5.23)



Silver Phillips PM2.5×5.0 Screw Locations

Table A-8

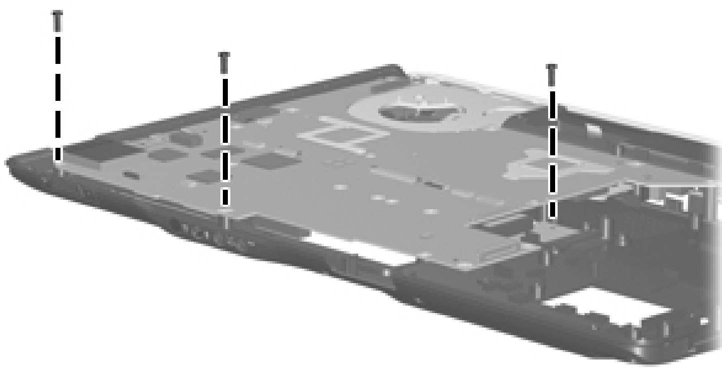
Silver Phillips PM2.5×5.0 Screw *(Continued)*



	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

Where used:

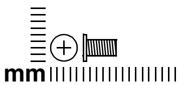
3 screws that secure the system board to the base enclosure (documented in Section 5.24)



Silver Phillips PM2.5×5.0 Screw Locations

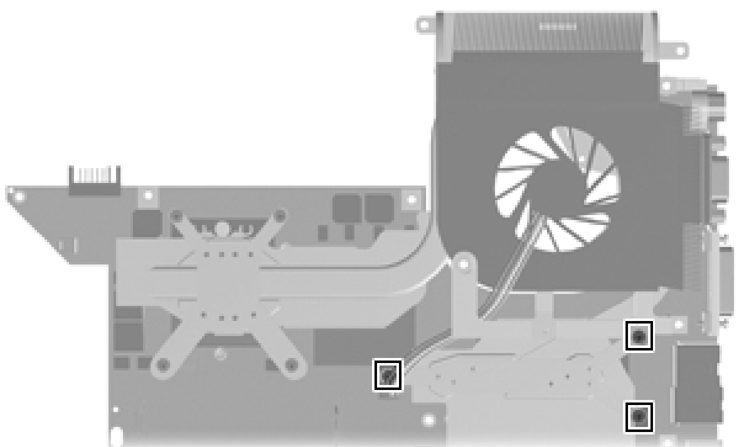
Table A-8

Silver Phillips PM2.5×5.0 Screw *(Continued)*

	Color	Qty.	Length	Thread	Head Width
	Silver	28	5.0 mm	2.5 mm	5.0 mm

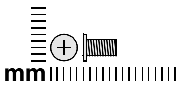
Where used:

3 screws that secure the heat sink to the system board (documented in Section 5.25)

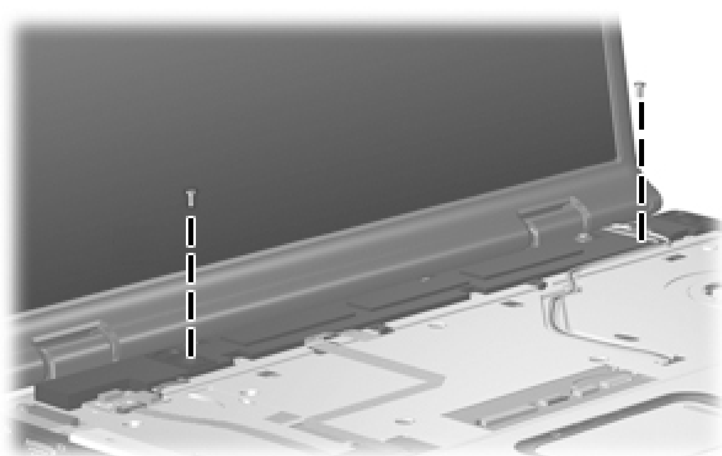


Silver Phillips PM2.5×5.0 Screw Locations

Table A-9
Black Phillips PM2.5×5.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	3	5.0 mm	2.5 mm	5.0 mm

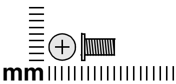
Where used:
Two screws that secure the speaker assembly to the base enclosure (documented in Section 5.12)



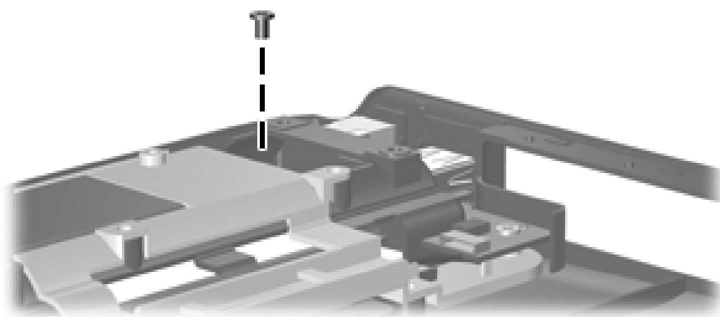
Black Phillips PM2.5×5.0 Screw Locations

Table A-9

Black Phillips PM2.5×5.0 Screw *(Continued)*

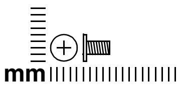
	Color	Qty.	Length	Thread	Head Width
	Black	3	5.0 mm	2.5 mm	5.0 mm

Where used:
One screw that secures the power connector assembly to the base enclosure (documented in Section 5.23)

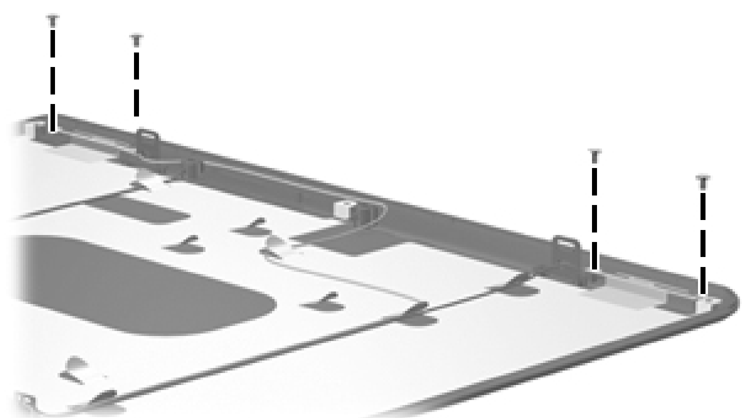


Black Phillips PM2.5×5.0 Screw Location

Table A-10
Phillips PM2.0×4.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Silver	4	4.0 mm	2.0 mm	5.0 mm

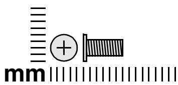
Where used:
4 screws that secure the wireless antenna transceivers to the display enclosure (documented in Section 5.14)



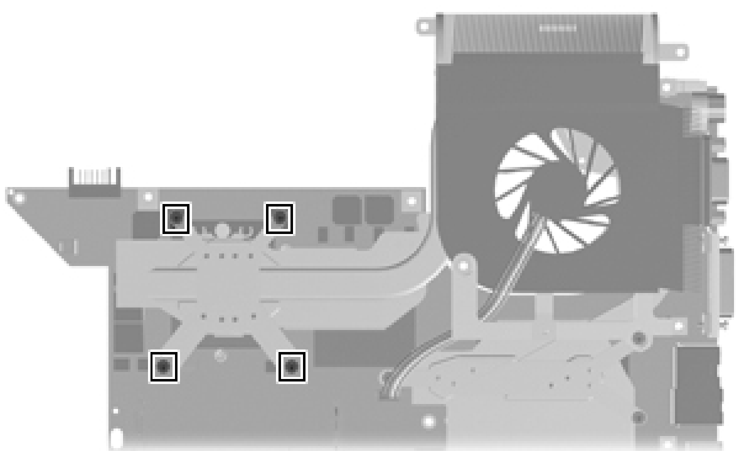
Phillips PM2.0×4.0 Screw Locations

Table A-11

Phillips PM2.5×6.0 Screw

	Color	Qty.	Length	Thread	Head Width
	Black	4	6.0 mm	2.5 mm	5.0 mm

Where used:
4 screws that secure the fan/heat sink assembly to the system board (documented in Section 5.25)



Phillips PM2.5×6.0 Screw Locations

B

Backup and Recovery

Backup and Recovery in Windows XP

Recovering System Information

Tools provided by the operating system and PC Recovery software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Backing up your information regularly to protect your important system files.
- Making a set of recovery discs (PC Recovery software feature). Recovery discs are used to start up (boot) your computer and restore the operating system and software programs to factory settings in case of system failure or instability.
- Creating system restore points (operating system feature). System restore points allow you to reverse undesirable changes to your computer by restoring the computer to an earlier state.
- Recovering a program or driver (PC Recovery software feature). This feature helps you reinstall a program or driver without performing a full system recovery.
- Performing a full system recovery (PC Recovery software feature). With PC Recovery, you can recover your full factory image if you experience system failure or instability. PC Recovery works from a dedicated recovery partition on the hard drive or from recovery discs you create.

Backing Up Your Information

When to Back Up

- On a regularly scheduled basis

✎ Set reminders to back up your information periodically.

- Before the computer is repaired or restored
- Before you add or modify hardware or software

Backup Suggestions

- Create system restore points using Windows XP Professional System Restore feature.
- Store personal files in the My Documents folder and back up these folders periodically.
- Back up templates stored in their associated programs.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings.

  The screen shot can be a time saver if you have to reset your preferences.

  To copy the screen and paste it into a Word document:

  a. Display the screen.

  b. Copy the screen:

     To copy only the active window, press **alt+fn+prt sc**.

     To copy the entire screen, press **fn+prt sc**.

  c. To paste the copied images into a document, open Word, and then select **Edit > Paste**.

Using System Restore Points

When you back up your system, you are creating a system restore point. A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.

✎ Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for your system files and settings.

When to Create Restore Points

- Before you add or extensively modify software or hardware.
- Periodically, whenever the system is performing optimally.

✎ If you revert to a restore point and then change your mind, you can reverse the restoration.

Creating a System Restore Point

1. Select **Start > Help and Support > System Restore**.

   The System Restore window opens.
2. Click **Create a restore point**, and then click **Next**.
3. Follow the on-screen instructions.

Restoring to a Previous Date and Time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally:

1. Select **Start > Help and Support > System Restore**.

   The System Restore window opens.

2. Click **Restore my computer to an earlier time**, and then click **Next**.
3. Follow the on-screen instructions.

Creating Recovery Discs

PC Recovery Disc Creator creates a set of recovery CDs or DVDs for the computer. Use recovery discs to restore the operating system and software programs to factory settings, in case of system failure or instability.

✎ Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.

Note the following guidelines before creating recovery discs:

- You will need high quality CD-R, DVD-R, or DVD+R media (purchased separately).

✎ DVD±RW/R and double-layer DVD±RW are not compatible with the PC Recovery Disc Creator software.

- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the computer optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open PC Recovery Disc Creator, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > System Recovery > PC Recovery Disc Creator**.

   The PC Recovery Disc Creator tool opens.
2. Click **Next**.

✎ If you are operating the computer on battery power, you will be prompted to connect to AC power before you can go to the next step.

3. Select the type of disc you want to use and click **Next**.

✎ The software examines the image and displays the number of blank discs needed to create your recovery discs.

4. Insert the first disc and follow the on-screen instructions to complete the creation of the recovery discs.

Reinstalling Software Programs and Drivers

If a program or driver preinstalled at the factory is accidentally erased or is damaged, the Application and Driver Recovery tool allows you to reinstall it.

✎ Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.

✎ Before reinstalling the program, be sure it is fully uninstalled.

The Application and Driver Recovery tool replaces corrupted system files and reinstalls deleted system files within the program.

- In most cases, if the program you are reinstalling is still on your computer, the reinstallation process does not affect your personal settings.
- In all cases, if a program has been deleted from your computer, the reinstallation process reinstalls the program or utility to the factory image but cannot restore your personal settings.

Reinstalling Preinstalled Programs and Drivers

1. Remove the program or driver:

> ✎ In some cases, drivers are not listed in the Add or Remove Programs list. If the driver is not listed, it does not need to be removed.

   a. Select **Start > Control Panel > Add or Remove Programs**.

   b. Click the program or driver you want to remove, and then click **Change/Remove**.

2. Select **Start > All Programs > System Recovery > Application and Driver Recovery**.

   The Application and Driver Recovery tool opens.

3. Select **Application Installation or Driver Installation**, and then click **Next**.
4. Follow the on-screen instructions to complete the program or driver recovery.
5. Restart the computer if prompted.

Reinstalling Programs from Discs

1. Insert the disc into the optical drive.
2. When the installation wizard opens, follow the installation instructions on the screen.
3. Restart the computer if prompted.

Performing a Recovery

PC Recovery software allows you to repair or restore the system if you experience system failure or instability. PC Recovery works from recovery discs that you create or from a dedicated recovery partition on the hard drive.

✎ Microsoft Windows XP has its own built-in repair features, such as System Restore and driver roll-back capabilities. If you have not already tried these features, try them before using PC Recovery.

✎ PC Recovery only recovers software that was preinstalled at the factory. Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.

Recovering from the Recovery Discs

To restore the system from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into the optical drive and restart the computer.
3. Follow the on-screen instructions.

Recovering from the Partition on the Hard Drive

You can perform a recovery from the partition on the hard drive from either the Start button or **f11**.

To restore the system from the partition:

1. Access the PC Recovery tool:
   - ❏ To access PC Recovery from the Start button, select **Start > All Programs > System Recovery > PC Recovery**.
   - ❏ To access PC Recovery from **f11**, restart the computer and press **f11** while the “Press <F11> for recovery” message is displayed on the screen.

     The PC Recovery tool opens.
2. Select **PC Recovery** and click **Next**.

   The computer restarts and the PC Recovery tool opens.

3. Click **OK**.
4. Follow the on-screen instructions to complete the system recovery.

   If you want to perform a *destructive* recovery:

A destructive recovery formats the hard drive and restores the computer to its factory state. Select this option only as a last resort.

   a. Click **Advanced Options** on the System Recovery screen.
   b. Select **Destructive Recovery** and follow the on-screen instructions.

Deleting the Recovery Partition on the Hard Drive

The PC Recovery Advanced Options menu provides the option of deleting the recovery partition, which will increase space on the hard drive. Delete the recovery partition only if you have already created recovery discs.

CAUTION: After you create the recovery discs, you can increase space on the hard drive by deleting the recovery partition. However, doing this is not recommended. If you delete this partition, you will lose any information that is on the partition, including the PC Recovery software. Thereafter, you must use the recovery discs to access PC Recovery software.

To delete the recovery partition:

1. If you have not already created recovery discs, create them now.
2. Select **Start > All Programs > System Recovery > PC Recovery**.

   The PC Recovery tool opens.
3. Select **PC Recovery** and click **Next**.

   The computer restarts and the PC Recovery tools opens.

4. Click **OK**.
5. At the System Recovery screen, click **Advanced Options**.
6. Select **Delete Recovery Partition (not recommended)** and follow the on-screen instructions.

Updating Reinstalled Software

After you perform a system recovery, connect to the Internet to update all reinstalled software.

To access update links for the operating system and other software provided on your computer:

» Select **Start > Help and Support**.

To update optional software, follow the instructions provided by the software manufacturer. Some programs include an update feature you can access from a Help button or menu within the program.

Backup and Recovery in Windows Vista

Recovering System Information

Tools provided by the operating system and Recovery Manager software are designed to help you with the following tasks for safeguarding your information and restoring it in case of a system failure:

- Back up your information regularly to protect your important system files.
- Make a set of recovery discs (Recovery Manager software feature). Recovery discs are used to start up (boot) your computer and restore the operating system and software programs to factory settings in case of system failure or instability.

- Create system restore points (operating system feature). System restore points allow you to reverse undesirable changes to your computer by restoring the computer to an earlier state.
- Recover a program or driver (Recovery Manager software feature). This feature helps you reinstall a program or driver without performing a full system recovery.
- Perform a full system recovery (Recovery Manager software feature). With Recovery Manager, you can recover your full factory image if you experience system failure or instability. Recovery Manager works from a dedicated recovery partition on the hard drive or from recovery discs you create.

Backing up Your Information

When to Back Up

- On a regularly scheduled basis.

✎ Set reminders to back up your information periodically.

- Before the computer is repaired or restored.
- Before you add or modify hardware or software.

Backup Suggestions

- Create system restore points using the Windows System Restore feature.
- Store personal files in the Documents folder and back up these folders periodically.
- Back up templates stored in their associated programs.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings.

  The screen shot can be a time saver if you have to reset your preferences.

To copy the screen and paste it into a word-processing document:

a. Display the screen.

b. Copy the screen:

To copy only the active window, press **alt+fn+prt sc**.

To copy the entire screen, press **fn+prt sc**.

c. Open a word-processing document, and then select **Edit > Paste**.

Using System Restore Points

When you back up your system, you are creating a system restore point. A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.

✎ Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

You also can create additional restore points to provide increased protection for your system files and settings.

When to Create Restore Points

- Before you add or extensively modify software or hardware.
- Periodically, whenever the system is performing optimally.

✎ If you revert to a restore point and then change your mind, you can reverse the restoration.

Creating a System Restore Point

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.

3. Click the **System Protection** tab.
4. Under Automatic restore points, select the disk for which you want to create a restore point.
5. Click **Create**.

   The System Protection window opens.
6. Follow the on-screen instructions.

Restoring to a Previous Date and Time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:

1. Select **Start > Control Panel > System and Maintenance > System**.
2. In the left pane, click **System protection**.
3. Click the **System Protection** tab.
4. Click the **System Restore** button, and then click **Next**.

   The System Restore window opens.
5. Follow the on-screen instructions.

Creating Recovery Discs

Recovery Manager creates a set of recovery CDs or DVDs for the computer. Use recovery discs to restore the operating system and software programs to factory settings, in case of system failure or instability.

✎ Handle these discs carefully and keep them in a safe place. The software allows the creation of only one set of recovery discs.

Note the following guidelines before creating recovery discs:

- You will need high quality CD-R, DVD-R, or DVD+R discs (purchased separately).

✎ Formatted DVD±RW discs and DVD±RW double-layer discs are not compatible with the Recovery Manager software.

- The computer must be connected to AC power during this process.
- Only one set of recovery discs can be created per computer.
- Number each disc before inserting it into the computer optical drive.
- If necessary, you can exit the program before you have finished creating the recovery discs. The next time you open Recovery Manager, you will be prompted to continue the disc creation process.

To create a set of recovery discs:

1. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

   Recovery Manager opens.
2. Click **Advanced Options**.

✎ If you are operating the computer on battery power, you will be prompted to connect to AC power before you can go to the next step.

3. Click **Recovery disc creation**, and then click **Next**.
4. Follow the on-screen instructions.

Reinstalling Software Programs and Drivers

If a program or driver preinstalled at the factory is accidentally erased or is damaged, Recovery Manager allows you to reinstall it.

✎ Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.

✎ Before reinstalling the program, be sure it is fully uninstalled.

Recovery Manager replaces corrupted system files and reinstalls deleted system files within the program.

- In most cases, if the program you are reinstalling is still on your computer, the reinstallation process does not affect your personal settings.
- In all cases, if a program has been deleted from your computer, the reinstallation process reinstalls the program or utility to the factory image but cannot restore your personal settings.

Reinstalling Preinstalled Programs and Drivers

1. Remove the program or driver:

✎ Before reinstalling the program, be sure it is fully uninstalled.

   a. Select **Start > Control Panel > Programs > Uninstall a program**.

   b. Right-click the program or driver you want to remove, and then click **Uninstall**.

2. Reinstall the program or driver:

   a. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

   Recovery Manager opens.

   b. Click **Advanced Options**.

   c. Click either **Software program re-installation** or **Hardware driver re-installation**, and then click **Next**.

   d. Follow the on-screen instructions.

   e. Restart the computer if prompted.

Reinstalling Programs from Discs

1. Insert the disc into the optical drive.

2. When the installation wizard opens, follow the installation instructions on the screen.
3. Restart the computer if prompted.

Performing a Recovery

Recovery Manager software allows you to repair or restore the system if you experience system failure or instability. Recovery Manager works from recovery discs that you create or from a dedicated recovery partition on the hard drive.

✎ Windows has its own built-in repair features, such as System Restore and driver rollback capabilities. If you have not already tried these features, try them before using Recovery Manager.

✎ Recovery Manager only recovers software that was preinstalled at the factory. Software not provided with this computer must be reinstalled from the disc provided by the manufacturer or downloaded from the manufacturer's Web site.

Recovering from the Recovery Discs

To restore the system from the recovery discs:

1. Back up all personal files.
2. Insert the first recovery disc into the optical drive and restart the computer.
3. Follow the on-screen instructions.

Recovering from the Partition on the Hard Drive

You can perform a recovery from the partition on the hard drive from either the Start button or **f11**.

To restore the system from the partition, follow these steps:

1. Access Recovery Manager in either of the following ways:

- ❏ Select **Start > All Programs > Recovery Manager > Recovery Manager**.
- ❏ Restart the computer and press **f11** while the “Press <F11> for recovery” message is displayed on the screen. Then select **Recovery Manager**.

Recovery Manager opens.

2. Click **Advanced Options**.
3. Click **System recovery**, and then click **Next**.
4. Follow the on-screen instructions.

Deleting the Recovery Partition on the Hard Drive

The Recovery Manager Advanced Options menu provides the option of deleting the recovery partition, which will increase space on the hard drive. Delete the recovery partition only if you have already created recovery discs.

CAUTION: After you create the recovery discs, you can increase space on the hard drive by deleting the recovery partition. However, doing this is not recommended. If you delete this partition, you will lose any information that is on the partition, including Recovery Manager software. Thereafter, you must use the recovery discs to access Recovery Manager software.

To delete the recovery partition:

1. If you have not already created recovery discs, create them now.
2. Select **Start > All Programs > Recovery Manager > Recovery Manager**.

   Recovery Manager opens.
3. Click **Advanced Options**.
4. Click **Remove recovery partition**, and then click **Next**.
5. Follow the on-screen instructions.

Updating Reinstalled Software

After you perform a system recovery, connect to the Internet to update all reinstalled software.

To access update links for the operating system and other software provided on your computer:

» Select **Start > Help and Support**.

To update optional software, follow the instructions provided by the software manufacturer. Some programs include an update feature you can access from a Help button or menu within the program.

C

Display Component Recycling

WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

CAUTION: The procedures in this appendix can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. Careful handling should be exercised when removing these components.

Materials Disposal

This HP product contains mercury in the display assembly backlight and may require special handling at end-of-life.

Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities or visit the Electronic Industries Alliance (EIA) at http://www.eiae.org.

This appendix provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight ❶ and the LCD panel ❷.

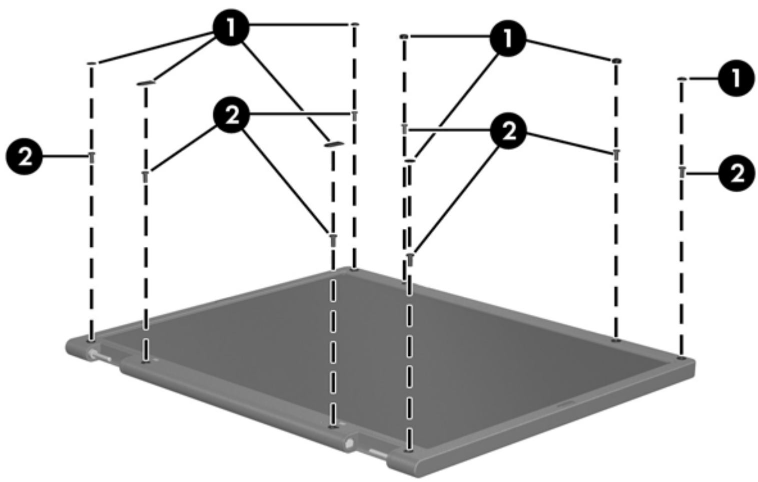


✎ Disassembly procedures differ from one display assembly to another. The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Refer to Section 5.14, “Display Assembly,” for display assembly disassembly steps.

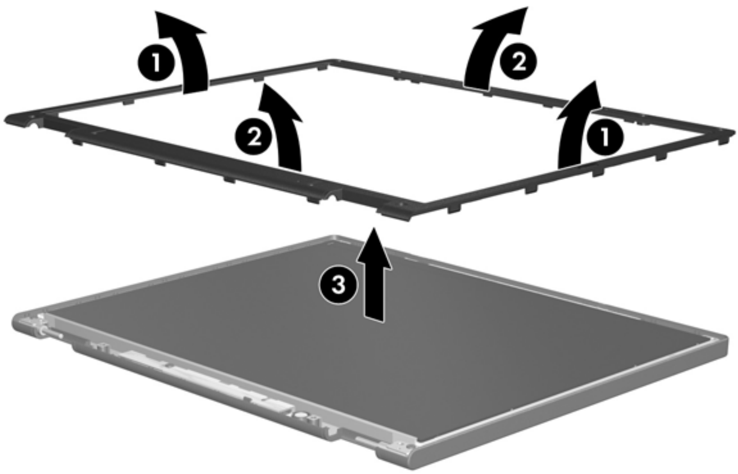
Perform the following steps to disassemble the display assembly:

1. Remove all screw covers ❶ and screws ❷ that secure the display bezel to the display assembly.



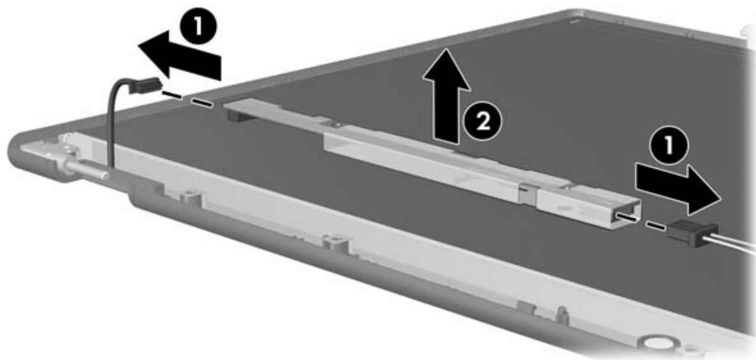
Removing the Display Bezel Screw Covers and Screws

2. Lift up and out on the left and right inside edges ❶ and the top and bottom inside edges ❷ of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel ❸.



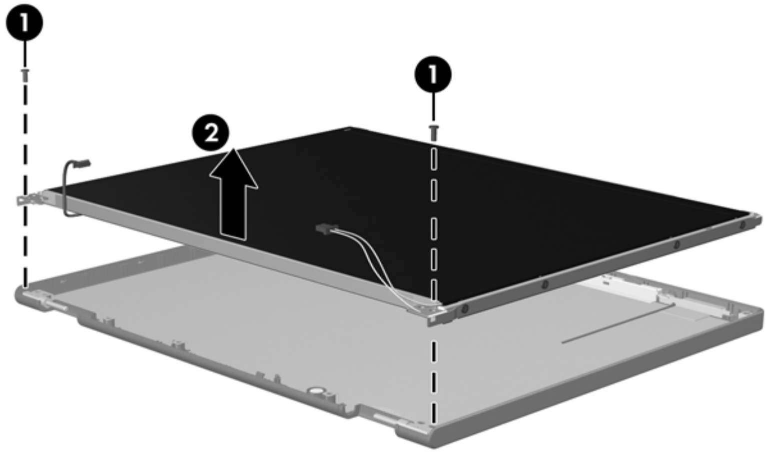
Removing the Display Bezel

4. Disconnect all LCD panel cables ❶ from the display inverter board and remove the inverter board ❷.



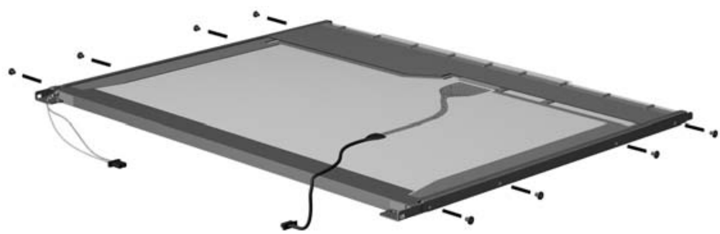
Removing the Display Inverter Board

5. Remove all screws ❶ that secure the LCD panel to the display enclosure.
6. Remove the LCD panel ❷ from the display enclosure.



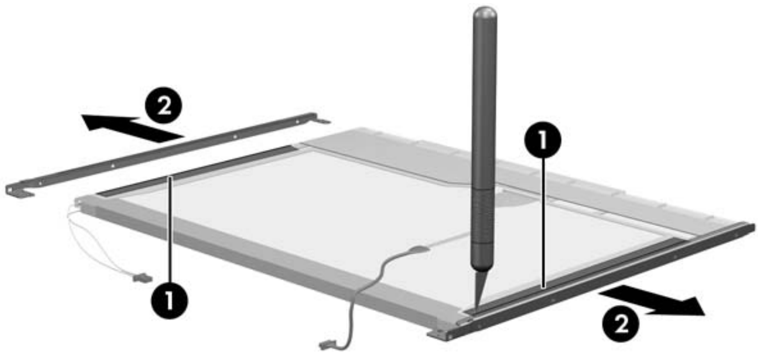
Removing the LCD Panel

7. Turn the LCD panel upside down.
8. Remove all screws that secure the LCD panel frame to the LCD panel.



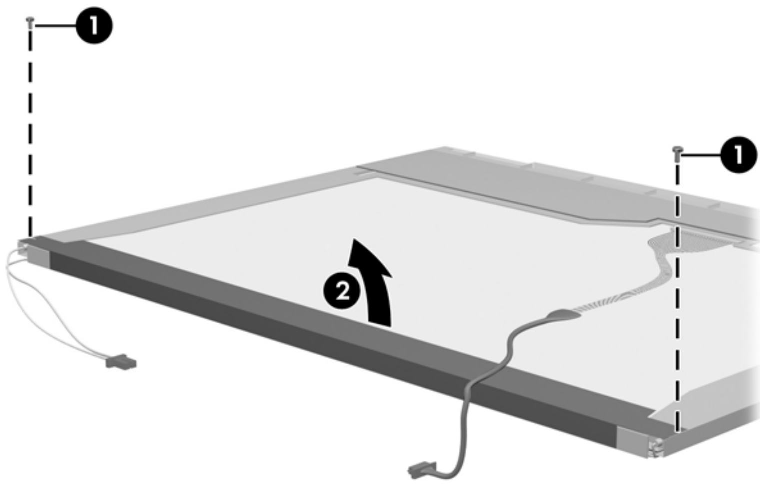
Removing the LCD Panel Frame Screws

9. Use a sharp-edged tool to cut the tape ❶ that secures the side of the LCD panel to the LCD panel frame.
10. Remove the LCD panel frame ❷ from the display panel.



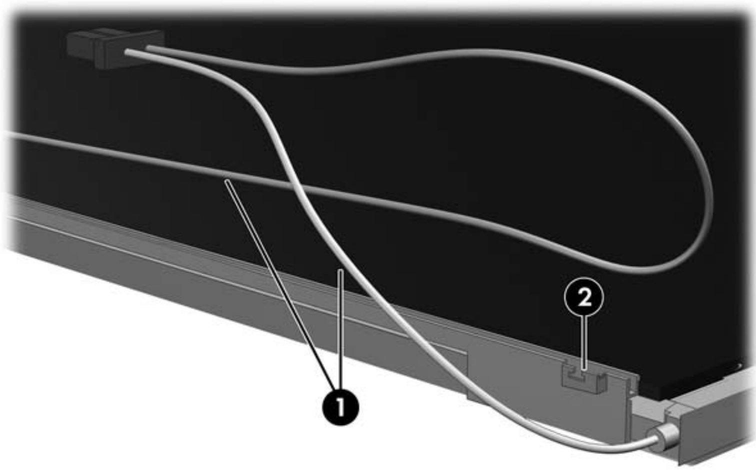
Removing the LCD Panel Frame

11. Remove the screws ❶ that secure the backlight cover to the LCD panel.
12. Lift the top edge of the backlight cover ❷ and swing it forward.
13. Remove the backlight cover.



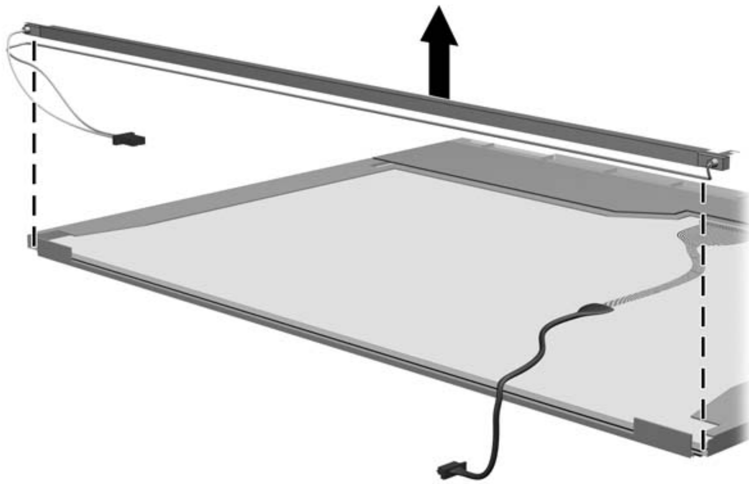
Removing the Backlight Cover

14. Turn the LCD panel right-side up.
15. Remove the backlight cables ❶ from the clip ❷ in the LCD panel.



Releasing the Backlight Cables

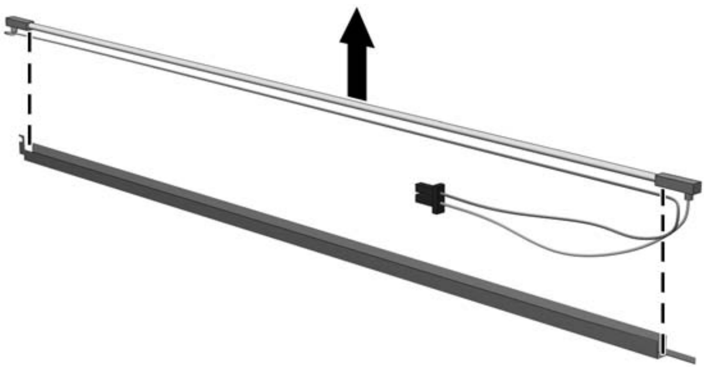
16. Turn the LCD panel upside down.
17. Remove the backlight frame from the LCD panel.



Removing the Backlight Frame

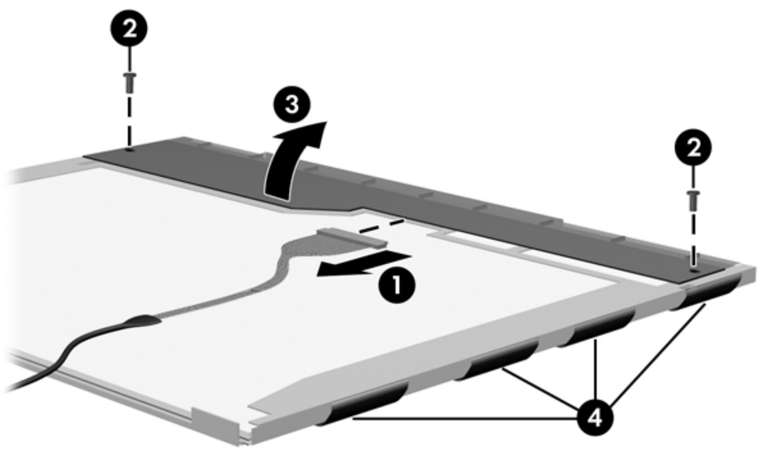
WARNING: The backlight contains mercury. Caution should be exercised when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

18. Slide the backlight out of the backlight frame.



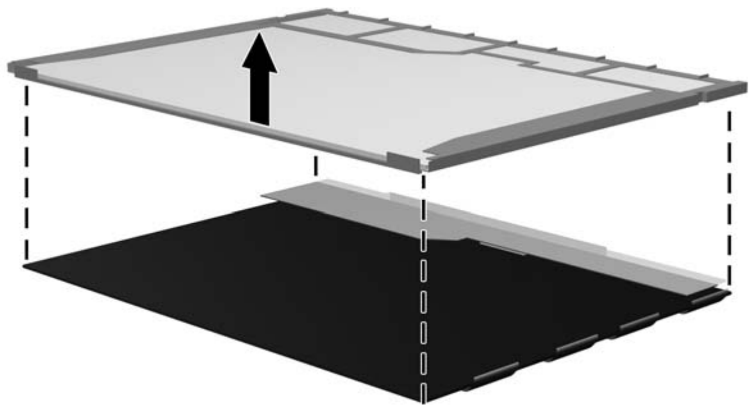
Removing the Backlight

19. Disconnect the display cable ❶ from the LCD panel.
20. Remove the screws ❷ that secure the LCD panel to the LCD rear panel.
21. Release the LCD panel ❸ from the LCD rear panel.
22. Release the tape ❹ that secures the LCD panel to the LCD rear panel.



Releasing the LCD Panel

23. Remove the LCD panel.



Removing the LCD Panel

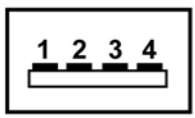
24. Recycle the backlight and LCD panel.

D

Connector Pin Assignments

Table E-1

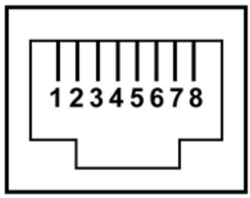
Universal Serial Bus



Pin	Signal	Pin	Signal
1	+5 VDC	3	Data +
2	Data –	4	Ground

Table E-2

RJ-45 (Network)



Pin	Signal	Pin	Signal
1	Transmit +	5	Unused
2	Transmit –	6	Receive –
3	Receive +	7	Unused
4	Unused	8	Unused

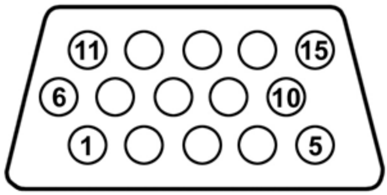
Table E-3

S-Video-Out



Pin	Signal	Pin	Signal
1	TV-Ground	5	TV-CD
2	TV-CVBS	6	TV-Ground
3	TV-Ground	7	TV-YD
4	TV-Ground		

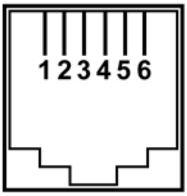
Table E-4
External Monitor



Pin	Signal	Pin	Signal
1	Red analog	9	+5 VDC
2	Green analog	10	Ground
3	Blue analog	11	Monitor detect
4	Not connected	12	DDC 2B data
5	Ground	13	Horizontal sync
6	Ground analog	14	Vertical sync
7	Ground analog	15	DDC 2B clock
8	Ground analog		

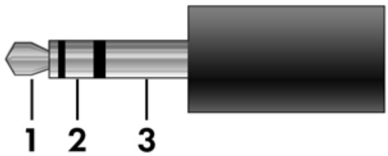
Table E-5

RJ-11 (Modem)



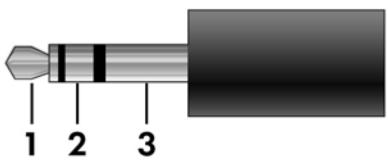
Pin	Signal	Pin	Signal
1	Unused	4	Unused
2	Tip	5	Unused
3	Ring	6	Unused

Table E-6
Audio-In (Microphone)



Pin	Signal	Pin	Signal
1	Audio signal in	3	Ground
2	Audio signal in		

Table E-7
Audio-Out (Headphone)



Pin	Signal	Pin	Signal
1	Audio out, left channel	3	Ground
2	Audio out, right channel		

E

Power Cord Set Requirements

3-Conductor Power Cord Set

The wide range input feature of the computer permits it to operate from any line voltage from 100 to 120 or 220 to 240 volts AC.

The power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

General Requirements

The requirements listed below are applicable to all countries and regions.

- The length of the power cord set must be at least 1.5 m (5.0 ft) and a maximum of 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by each country's or region's power system.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Country/Region-Specific Requirements

3-Conductor Power Cord Set Requirements

Country/Region	Accredited Agency	Applicable Note Number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3

✎ NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

3-Conductor Power Cord Set Requirements *(Continued)*

Country/Region	Accredited Agency	Applicable Note Number
Korea	EK	4
The Netherlands	KEMA	1
Norway	NEMKO	1
People's Republic of China	CCC	5
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
United Kingdom	BSI	1
United States	UL	2

NOTES:

1. The flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00 mm^2 conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

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